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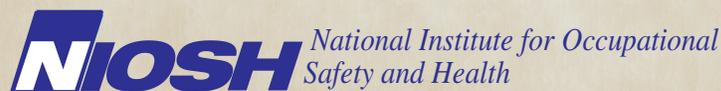


Evaluation of Carbon Monoxide Exposure Among Airport Cargo Material Handlers

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DEPARTMENT OF HEALTH AND HUMAN SERVICES
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The employer shall post a copy of this report for a period of 30 calendar days at or near the workplace(s) of affected employees. The employer shall take steps to insure that the posted determinations are not altered, defaced, or covered by other material during such period. [37 FR 23640, November 7, 1972, as amended at 45 FR 2653, January 14, 1980].

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ABBREVIATIONS

ACGIH®	American Conference of Governmental Industrial Hygienists
BEI®	Biological exposure index
CFM	Cubic feet per minute
CFR	Code of Federal Regulations
CO	Carbon monoxide
COHb	Carboxyhemoglobin
HHE	Health hazard evaluation
IDLH	Immediately dangerous to life or health
NAICS	North American Industry Classification System
NIOSH	National Institute for Occupational Safety and Health
OEL	Occupational exposure limit
OSHA	Occupational Safety and Health Administration
PBZ	Personal breathing zone
PEL	Permissible exposure limit
ppm	Parts per million
REL	Recommended exposure limit
STEL	Short term exposure limit
TLV®	Threshold limit value
TSA	Transportation Security Administration
TWA	Time-weighted average
WEEL	Workplace environmental exposure level

HIGHLIGHTS OF THE NIOSH HEALTH HAZARD EVALUATION

The National Institute for Occupational Safety and Health (NIOSH) received a request for a health hazard evaluation from the Transportation Security Administration (TSA) screening operation housed at a warehouse in Hebron, Kentucky. TSA management submitted the request due to concerns about forklift exhaust. An evaluation was conducted in March 2007.

What NIOSH Did

- We talked with management and employees about working conditions and forklift and tug exhaust in the warehouse.
- We measured employees' exposure to carbon monoxide in the warehouse.

What NIOSH Found

- All Airport Terminal Services employees' carbon monoxide levels were above recommended limits.
- TSA and Delta Air Logistics employees' carbon monoxide levels were not above recommended limits.
- Employees' carboxyhemoglobin levels were not above the recommended limit.

What Managers Can Do

- Replace the fuel-driven forklifts and tugs with electric ones.
- Increase ventilation in the warehouse.
- Use catalytic converters on fuel-driven forklifts and tugs.
- Keep offices and the TSA addition under positive air pressure relative to the warehouse.
- Conduct emission testing on fuel-driven forklifts and tugs.
- Make sure preventive maintenance is done on forklifts and tugs.
- Ask drivers to turn off their vehicle's engine when at the dock doors.
- Install carbon monoxide alarms.
- Develop a hazard communication program for working around forklift and tug exhaust.
- Monitor employees' exposure to carbon monoxide.

What Employees Can Do

- Ask drivers to turn off their vehicle's engine when at the dock doors.
- Take hazard communication training.
- Take part in personal carbon monoxide monitoring.

In February 2007, NIOSH received a request from TSA management at the Cincinnati/Northern Kentucky International Airport to conduct an HHE at the Delta Air Logistics warehouse in Hebron, Kentucky. The request concerned potential exposure to emissions from forklifts used in the warehouse. The request indicated that some employees had experienced health problems, including headaches and nausea, possibly related to the work environment. Although the request was received from TSA, the workspace was shared by employees from TSA, Delta Air Logistics, and Airport Terminal Services (under the supervision of Delta Air Logistics). Employees from all three companies were evaluated.

The Airport Terminal Services employees we monitored were overexposed to CO, but TSA and Delta Air Logistics employees were not overexposed. All employees monitored had COHb concentrations within the normal reference ranges. We recommend that TSA, Delta Air Logistics, and Airport Terminal Services implement a combination of controls to eliminate or reduce CO exposure.

On March 1, 2007, we held an opening conference with TSA and Delta Air Logistics management and a TSA employee representative. The meeting included an overview of the NIOSH HHE program, a review of the issues that prompted the HHE request, and a discussion of the scope of the evaluation. After the meeting, a walk-through of the warehouse was conducted to learn about exposures and observe work practices. On March 8, 2007, PBZ air measurements were taken for CO, and biological measurements were taken for COHb.

We found that all Airport Terminal Services employees' CO levels exceeded the ACGIH TLV, and one exceeded the NIOSH REL. None of the TSA or Delta Air Logistics employees exceeded any OELs for CO. None of the employees participating in this evaluation had COHb levels that exceeded the ACGIH BEI or were above normal reference ranges.

Recommendations are provided to eliminate or reduce CO exposure in the warehouse. The preferred recommendation is to replace all fuel-driven forklifts with electric forklifts because this will remove the CO hazard. If this is not feasible, engineering and administrative controls are recommended. These include adjusting the ventilation in the warehouse, offices, and planned TSA addition; installing catalytic convertors on the fuel-driven forklifts and tugs; improving preventive maintenance, including periodic emission testing of the forklifts and tugs; turning off vehicles while at the loading docks; installing CO alarms; developing a hazard communication program; and monitoring CO periodically.

Keywords: NAICS 928110 (National Security), carbon monoxide, forklift, warehouse, and national security

In February 2007, NIOSH received a request from TSA management at the Cincinnati/Northern Kentucky International Airport to conduct an HHE at the Delta Air Logistics warehouse in Hebron, Kentucky. The request concerned potential exposures to emissions from forklifts used inside the warehouse that were thought to be causing health problems such as headaches and nausea. Although the request was received from TSA, the workspace was shared by employees from TSA, Delta Air Logistics, and Airport Terminal Services (under the supervision of Delta Air Logistics). Employees from all three companies were evaluated.

On March 1, 2007, we held an opening conference with TSA and Delta Air Logistics management and a TSA employee representative. The meeting included an overview of the NIOSH HHE program, a review of the issues that prompted the HHE request, and a discussion of the scope of the evaluation. After the meeting, a walk-through survey of the warehouse was conducted to learn about exposures and observe work practices. On March 8, 2007, PBZ air measurements were taken for CO, and biological measurements were taken for COHb.

Process Description

TSA is congressionally mandated to screen cargo carried on passenger airplanes. This mandate requires airlines to present 30% of a cargo load to TSA for explosives and incendiaries inspection before being loaded onto aircraft. TSA at the Cincinnati/Northern Kentucky International Airport started a cargo screening pilot project with Delta Air Logistics in 2006.

Outbound customer cargo is delivered to the Delta Air Logistics receiving dock or to the front desk by hand. Outbound cargo can also be received by Delta Air Logistics from inbound international flights. Once the cargo is received by Delta Air Logistics and marked for the appropriate destination, 30% or more of the cargo is brought to TSA where it is screened with explosive detection equipment. Once screened, cargo is collated by its destination and ultimately placed in large bins or on skids for shipment. Inbound cargo with the final destination of Cincinnati is received in the second portion of the warehouse where it is removed from the bins and skids and sorted for customer pickup or delivery. Cargo, both inbound and outbound, is moved primarily by propane-fueled or gasoline-fueled forklifts, and cargo bins and skids are moved

INTRODUCTION (CONTINUED)

by gasoline-fueled or diesel-fueled tugs. Delta Air Logistics and Airport Terminal Services employees, a subcontractor to Delta Air Logistics, operate these forklifts and tugs. TSA employees do not move the cargo. Approximately 13 to 15 TSA, Delta Air Logistics, and Airport Terminal Services employees work in the warehouse.

The warehouse is divided into four primary areas: outbound, inbound, storage/customer pickup, and administrative offices. Both the outbound and inbound areas have rooftop exhaust units with outdoor make-up air dampers at floor level in the warehouse's exterior walls. These exhaust units are not used during the winter due to the cost of heating the warehouse. Employees reported not knowing how to control the exhaust fans, which were not operating at the time of our evaluation. Delta Air Logistics does not have a policy requiring vehicles picking up or dropping off cargo to turn off their engines when loading or unloading at the receiving docks. Delta Air Logistics reports that it has monthly preventive maintenance performed on the forklifts by an outside company.

TSA employees are located in one corner of the outbound area of the warehouse. At the time of our evaluation, the TSA cargo screening operations were not enclosed and did not have a separate ventilation system. TSA was planning to construct an addition to the warehouse to house its operations with a separate ventilation system.

Three TSA employees, four Airport Terminal Services employees, and six Delta Air Logistics employees participated in our evaluation on March 8, 2007. Toxi Ultra CO detectors (Biosystems, Middletown, Connecticut) were used to assess PBZ air exposures. The detectors use an electrochemical cell to detect CO levels and were calibrated on-site prior to their use. The CO levels were recorded in real time at 1-minute intervals; this set of data was then used to calculate full-shift TWA exposures and peak exposures. The detectors are capable of measuring CO levels of 0–1,000 ppm; the generally accepted accuracy of electrochemical sensors is $\pm 5\%$ or ± 2 ppm, whichever is greater.

We also conducted biological monitoring to assess employees' CO exposure over the course of their shift. We used the MicroCO Meter (Micro Medical Limited, Rochester, Kent, United Kingdom) to measure CO in exhaled breath. The MicroCO meter calculates %COHb based on the CO level; this can be compared with the ACGIH BEI for COHb. Before starting the shift and after completing the shift we asked employees to inhale, then exhale completely, and then inhale deeply and hold their breath for 20 seconds. At the end of 20 seconds the employee exhaled through a one-way valve on the MicroCO meter over an electrochemical sensor. By looking at the difference between preshift and postshift %COHb levels, we were able to determine the change over the shift. Additional OEL and health effects information on CO and COHb is provided in Appendix A.

RESULTS

Table 1 provides the individual CO measurements and individual preshift and postshift %COHb levels. Full-shift CO concentrations ranged from 15 to 42 ppm, with an average concentration of 23 ppm. None of the employees monitored exceeded the OSHA PEL of 50 ppm; however, one of the Airport Terminal Services employees exceeded the NIOSH REL of 35 ppm, and all four Airport Terminal Services employees exceeded the ACGIH TLV of 25 ppm. No monitored employee exceeded the NIOSH recommended ceiling limit of 200 ppm.

When analyzing results for %COHb, different reference ranges are used for nonsmokers and smokers because smokers generally have higher baseline %COHb levels. For all nonsmoking participants, the average preshift COHb level was 1.12%, and the average postshift level was 1.28%, an increase of 12.5%. For smokers, the average preshift COHb level was 3.74%, and the average postshift level was 3.26%, representing a decrease of 12.8%. None of the nonsmoking participants exceeded the ACGIH BEI for CO of 3.5% COHb at the end of shift. All of the participants were within or below the World Health Organization's reference ranges for COHb of 1%–2% for nonsmokers and 3%–8% for smokers.

Table 1. Individual COHb and PBZ CO levels

Company	Preshift COHb (%)	Postshift COHb (%)	CO exposure* (ppm)	Sample period (minutes)
TSA†	8.32	2.56	21	483
TSA	0.48	0.00	22	483
TSA	0.48	0.00	21	505
Airport Terminal Services†	1.76	5.76	42	460
Airport Terminal Services†	0.00	0.48	28	367
Airport Terminal Services	2.56	1.44	32	333
Airport Terminal Services	0.80	1.92	27	459
Delta Air Logistics†	4.00	2.56	20	339
Delta Air Logistics†	4.64	4.96	18	423
Delta Air Logistics	0.64	1.12	15	97
Delta Air Logistics	1.12	2.56	19	429
Delta Air Logistics	2.08	1.12	21	425
Delta Air Logistics	0.80	2.08	19	438

* TWA

† Smoker

DISCUSSION

The highest CO exposures were measured on the Airport Terminal Services employees. These employees moved the majority of the cargo in the warehouse, and most of their time was spent packing and unpacking the large cargo bins and skids. The Airport Terminal Services employees primarily used the propane-powered forklifts to move the cargo, but for heavier objects they used the gasoline-fueled forklifts. None of the forklifts were equipped with catalytic converters to reduce CO emissions.

The tugs used to move cargo bins and skids were gasoline- or diesel-fueled and, like the forklifts, were not equipped with catalytic converters. Delta Air Logistics reported that the forklifts and tugs were serviced by an outside company, but no records were available to review preventive maintenance procedures or schedules. Delta Air Logistics did not know if routine emission testing was performed by the service company.

Employees from Airport Terminal Services, Delta Air Logistics, and TSA reported times when drivers would leave their engines running while picking up or dropping off cargo at the loading docks. Employees reported smelling vehicular exhaust inside the warehouse when this occurred. None of the three companies had a policy requiring drivers to turn off their vehicle's engine.

The HHE request listed symptoms consistent with CO exposure. During informal discussions with employees monitored during this evaluation, they indicated that they had experienced these symptoms during the winter when the ventilation in the warehouse was at a minimum for energy conservation. None of the employees reported experiencing these symptoms during the time of our evaluation.

CONCLUSIONS

All Airport Terminal Services employees monitored during this evaluation exceeded the ACGIH TLV for CO; one employee exceeded the NIOSH REL. None of the TSA or Delta Air Logistics employees exceeded any OEL for CO. None of the employees participating in this evaluation had COHb levels that exceeded the ACGIH BEI or were above normal reference ranges.

Based on our findings, we recommend the following actions to create a more healthful workplace. We encourage TSA, Delta Air Logistics, and Airport Terminal Services to use these recommendations to develop an action plan based, if possible, on the hierarchy of controls approach (refer to Appendix A: Occupational Exposure Limits and Health Effects). This approach groups actions by their likely effectiveness in reducing or removing hazards. In most cases, the preferred approach is to eliminate hazardous materials or processes and install engineering controls to reduce exposure or shield employees. Until such controls are in place, or if they are not effective or feasible, administrative measures and/or personal protective equipment may be needed.

Elimination and Substitution

Elimination or substitution of a toxic/hazardous process material is a highly effective means for reducing hazards. Incorporating this strategy into the design or development phase of a project, commonly referred to as “prevention through design,” is most effective because if this recommendation is followed, all subsequent recommendations are not needed.

1. Delta Air Logistics and Airport Terminal Services should use electric forklifts inside the warehouse. Electric forklifts do not produce CO, and they are the most reliable solution for eliminating CO exposures in the workplace.

Engineering Controls

Engineering controls reduce exposures to employees by removing the hazard from the process or by placing a barrier between the hazard and the employee. Engineering controls are very effective at protecting employees without placing primary responsibility of implementation on the employee.

1. Delta Air Logistics should adjust the ventilation system in the warehouse and operate it when forklifts are used so that it provides at least 10,000 CFM of dilution air per propane-fueled forklift (emitting 1% or less CO) and 10,000 CFM of dilution air per gasoline-fueled forklift (emitting 2% or less CO). Additional information and guidelines are

available in the ACGIH Industrial Ventilation—A Manual of Recommended Practice for Design [ACGIH 2007].

2. Delta Air Logistics and Airport Terminal Services should install exhaust gas treatment catalytic converters to reduce the amount of CO in the fuel-driven forklifts' exhaust. Catalytic converters can reduce but not eliminate the possibility of CO exposure as they do not totally remove CO.
3. TSA should design the ventilation system for the new cargo screening addition to keep it under negative pressure in relation to the adjacent offices [ACGIH 2007]. This will prevent CO from entering the offices where TSA employees work when they are not screening cargo. The outdoor air intakes for the TSA offices and cargo screening addition should be located on the roof to prevent vehicle exhaust from being drawn in to the warehouse.

Administrative Controls

Administrative controls are management-dictated work practices and policies to reduce or prevent exposures to workplace hazards. The effectiveness of administrative changes in work practices for controlling workplace hazards is dependent on management commitment and employee acceptance. Regular monitoring and reinforcement is necessary to ensure that control policies and procedures are not circumvented in the name of convenience or production.

1. Delta Air Logistics and Airport Terminal Services should conduct emission testing on all fuel-driven forklifts operated inside the warehouse. The exhaust should not exceed 1% CO—concentrations greater than this indicate the need for an engine tune-up [Blanke 2000; SHARP 2005; ACGIH 2007].
2. Delta Air Logistics and Airport Terminal Services should continue to perform routine preventive maintenance as recommended by the forklift manufacturers to keep CO levels in the exhaust to a minimum (1% or less for propane-fueled and 2% for gasoline-fueled) [SHARP 2005; ACGIH 2007].

RECOMMENDATIONS (CONTINUED)

3. Delta Air Logistics should require that all vehicles dropping off or picking up cargo from the loading docks turn off their engines.
4. Delta Air Logistics and TSA should install CO alarms in the warehouse and in the TSA addition to alert employees when CO levels are elevated. The monitor should be set to alarm at 25 ppm CO, at which time appropriate action should be taken to reduce the CO levels.
5. TSA, Delta Air Logistics, and Air Terminal Services should develop a hazard communication program using the OSHA hazard communication standard as a program guideline. Sample programs can be found on the OSHA website at www.osha.gov/SLTC/hazardcommunications/index.html.
6. TSA, Delta Air Logistics, and Air Terminal Services should monitor their employees' CO exposure over a full shift when changes occur with cargo volumes, exposure controls, and/or work practices and compare these results with applicable OELs. Changes in ambient conditions, cargo volume, work practices, and a variety of other variables can affect CO exposures.

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APPENDIX A: OCCUPATIONAL EXPOSURE LIMITS & HEALTH EFFECTS

In evaluating the hazards posed by workplace exposures, NIOSH investigators use both mandatory (legally enforceable) and recommended OELs for chemical, physical, and biological agents as a guide for making recommendations. OELs have been developed by Federal agencies and safety and health organizations to prevent the occurrence of adverse health effects from workplace exposures. Generally, OELs suggest levels of exposure that most employees may be exposed up to 10 hours per day, 40 hours per week for a working lifetime without experiencing adverse health effects. However, not all employees will be protected from adverse health effects even if their exposures are maintained below these levels. A small percentage may experience adverse health effects because of individual susceptibility, a pre-existing medical condition, and/or a hypersensitivity (allergy). In addition, some hazardous substances may act in combination with other workplace exposures, the general environment, or with medications or personal habits of the employee to produce health effects even if the occupational exposures are controlled at the level set by the exposure limit. Also, some substances can be absorbed by direct contact with the skin and mucous membranes in addition to being inhaled, which contributes to the individual's overall exposure.

Most OELs are expressed as a TWA exposure. A TWA refers to the average exposure during a normal 8- to 10-hour workday. Some chemical substances and physical agents have recommended STEL or ceiling values where health effects are caused by exposures over a short period. Unless otherwise noted, the STEL is a 15-minute TWA exposure that should not be exceeded at any time during a workday, and the ceiling limit is an exposure that should not be exceeded at any time.

In the United States, OELs have been established by Federal agencies, professional organizations, state and local governments, and other entities. Some OELs are legally enforceable limits, while others are recommendations. The U.S. Department of Labor OSHA PELs (29 CFR 1910 [general industry]; 29 CFR 1926 [construction industry]; and 29 CFR 1917 [maritime industry]) are legal limits enforceable in workplaces covered under the Occupational Safety and Health Act. NIOSH RELs are recommendations based on a critical review of the scientific and technical information available on a given hazard and the adequacy of methods to identify and control the hazard. NIOSH RELs can be found in the *NIOSH Pocket Guide to Chemical Hazards* [NIOSH 2005]. NIOSH also recommends different types of risk management practices (e.g., engineering controls, safe work practices, employee education/training, personal protective equipment, and exposure and medical monitoring) to minimize the risk of exposure and adverse health effects from these hazards. Other OELs that are commonly used and cited in the United States include the TLVs recommended by ACGIH, a professional organization, and the WEELs recommended by the American Industrial Hygiene Association, another professional organization. The TLVs and WEELs are developed by committee members of these associations from a review of the published, peer-reviewed literature. They are not consensus standards. ACGIH TLVs are considered voluntary exposure guidelines for use by industrial hygienists and others trained in this discipline “to assist in the control of health hazards” [ACGIH 2008a]. WEELs have been established for some chemicals “when no other legal or authoritative limits exist” [AIHA 2008].

Outside the United States, OELs have been established by various agencies and organizations and include both legal and recommended limits. Since 2006, the Berufsgenossenschaftliches Institut für Arbeitsschutz (German Institute for Occupational Safety and Health) has maintained a database of international OELs

APPENDIX A: OCCUPATIONAL EXPOSURE LIMITS & HEALTH EFFECTS (CONTINUED)

from European Union member states, Canada (Québec), Japan, Switzerland, and the United States available at www.hvbg.de/e/bia/gestis/limit_values/index.html. The database contains international limits for over 1250 hazardous substances and is updated annually.

Employers should understand that not all hazardous chemicals have specific OSHA PELs, and for some agents the legally enforceable and recommended limits may not reflect current health-based information. However, an employer is still required by OSHA to protect its employees from hazards even in the absence of a specific OSHA PEL. OSHA requires an employer to furnish employees a place of employment free from recognized hazards that cause or are likely to cause death or serious physical harm [Occupational Safety and Health Act of 1970 (Public Law 91-596, sec. 5(a)(1))]. Thus, NIOSH investigators encourage employers to make use of other OELs when making risk assessment and risk management decisions to best protect the health of their employees. NIOSH investigators also encourage the use of the traditional hierarchy of controls approach to eliminate or minimize identified workplace hazards. This includes, in order of preference, the use of (1) substitution or elimination of the hazardous agent, (2) engineering controls (e.g., local exhaust ventilation, process enclosure, dilution ventilation), (3) administrative controls (e.g., limiting time of exposure, employee training, work practice changes, medical surveillance), and (4) personal protective equipment (e.g., respiratory protection, gloves, eye protection, hearing protection). Control banding, a qualitative risk assessment and risk management tool, is a complementary approach to protecting employee health that focuses resources on exposure controls by describing how a risk needs to be managed. Additional information on control banding is available at www.cdc.gov/niosh/topics/ctrlbanding/. This approach can be applied in situations where OELs have not been established or can be used to supplement the OELs, when available.

Carbon Monoxide

CO is a colorless, odorless, tasteless gas produced by incomplete burning of carbon-containing materials such as gasoline or propane fuel. The initial symptoms of CO poisoning may include headache, dizziness, drowsiness, or nausea. Symptoms may advance to vomiting, loss of consciousness, and collapse if prolonged or high exposures are encountered. If the exposure level is high, loss of consciousness may occur without any other symptoms. Coma or death may occur if high exposures continue. The display of symptoms varies widely from individual to individual and may occur sooner in susceptible individuals such as young or aged people, people with pre-existing lung or heart disease, or those living at high altitudes.

Exposure to CO limits the ability of the blood to carry oxygen to the tissues by occupying the oxygen binding sites on hemoglobin to form COHb. Once absorbed in the bloodstream, the half-life (the time it takes for half of the substance to be removed by the body) of CO from the blood varies widely by individual and circumstance (e.g., removal from exposure, initial COHb concentration, partial pressure of oxygen after exposure, etc.). Under normal recovery conditions breathing ambient air, the expected half-life is approximately 6 hours [NIOSH 2004a].

APPENDIX A: OCCUPATIONAL EXPOSURE LIMITS & HEALTH EFFECTS (CONTINUED)

The OSHA PEL for CO is 50 ppm for an 8-hour TWA exposure. The NIOSH REL for CO is 35 ppm for a 10-hour TWA exposure, with a ceiling of 200 ppm that should not be exceeded [NIOSH 1992]. The NIOSH REL is designed to protect employees from health effects associated with COHb levels in excess of 5% [NIOSH 1972]. NIOSH has established the IDLH for CO as 1,200 ppm. The IDLH exposure conditions “poses a threat of exposure to airborne contaminants when that exposure is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment” [NIOSH 2004b].

ACGIH recommends an 8-hour TWA TLV of 25 ppm based upon limiting shifts in COHb levels to less than 3.5%, thus minimizing adverse neurobehavioral changes such as headache, dizziness, etc., and to maintain cardiovascular exercise capacity [ACGIH 2008b]. ACGIH also recommends that exposures never exceed five times the TLV (thus, never to exceed 125 ppm) [ACGIH 2008a]. ACGIH recommends a BEI for end of shift COHb in blood of 3.5% [ACGIH 2008b]. The BEI indicates a concentration below which nearly all employees should not experience adverse health effects. The BEI cannot be applied to current smokers because they have been shown to have COHb levels between 4% and 10%, and can exceed 15% in heavy smokers [ACGIH 2008b; Tomaszewski 2002]. The World Health Organization established the reference ranges for COHb between 1%–2% for nonsmokers and 3%–8% for smokers [WHO 1999].

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The Hazard Evaluations and Technical Assistance Branch (HETAB) of the National Institute for Occupational Safety and Health (NIOSH) conducts field investigations of possible health hazards in the workplace. These investigations are conducted under the authority of Section 20(a)(6) of the Occupational Safety and Health Administration (OSHA) Act of 1970, 29 U.S.C. 669(a)(6) which authorizes the Secretary of Health and Human Services, following a written request from any employer or authorized representative of employees, to determine whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found. HETAB also provides, upon request, technical and consultative assistance to federal, state, and local agencies; labor; industry; and other groups or individuals to control occupational health hazards and to prevent related trauma and disease.

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