



VOSH PROGRAM DIRECTIVE: 14-412

ISSUED: November 1, 2005

SUBJECT: Local Emphasis Program for Spray-On Bedlining Operations Involving Exposure to Methylene Diphenyl Isocyanate (MDI), a.k.a. Methylene Bisphenyl Isocyanate

A. Purpose

This directive transmits to field personnel guidance for implementing a federal Region III Local Emphasis Program for spray-on bedlining operations involving exposure to Methylene Diphenyl isocyanate (MDI).

This Program Directive is an internal guideline, not a statutory or regulatory rule, and is intended to provide instructions to VOSH personnel regarding internal operation of the Virginia Occupational Safety and Health Program and is solely for the benefit of the program. This document is not subject to the Virginia Register Act or the Administrative Process Act; it does not have general application and is not being enforced as having the force of law.

B. Scope

This directive applies VOSH-wide and specifically to Occupational Health Compliance and Consultation Services personnel.

C. Reference

OSHA Regional Notice 04-05 (CPL 04) *Effective: Oct. 1, 2004; Amended: Jan.5, 2005.*

D. Cancellation

Not Applicable.

E. Action

Directors and Managers shall ensure that VOSH compliance and consultation personnel follow the procedures contained in this directive when conducting this LEP.

F. Effective Date

November 1, 2005 for outreach.
January 1, 2006 for inspections.

G. Background and Basis for the LEP

Isocyanates are a group of very reactive and toxic compounds used to make urethane, polyurethane or polyurea coatings. Spray-on truck bedliners, automotive paints and rigid foams are examples of materials that are based on isocyanates.

Protective linings are applied to truck beds using a spray application process. All spray-on truck bedlining involves mixing two-part urethane components and spraying the polymerizing urethane onto a cleaned and scuffed truck bed.

Workers applying this material can be exposed to very high levels of these toxic compounds. Office workers, sales staff, managers and others workers can be exposed to lower but harmful levels of isocyanates if the spray operation is not well controlled.

The following abstract offers additional background information:

Worker exposure to MDI (methylenediphenyl isocyanate) in the sprayed-on truck bed lining industry was assessed by examining Washington state OSHA inspection files and industrial insurance records. The industry uses MDI to form a protective urethane coating on pick-up truck beds. The lining is applied by a worker using a hand held spray gun with application equipment at temperatures and pressures specified by the urethane supplier.

Inspections with MDI sampling were initially identified by searching the agency's laboratory database, and were further screened for the targeted process. Data for thirteen employers was found and extracted from the inspection records. All were small companies with only one to two workers exposed to MDI; ten of the thirteen employers had started the bed lining service within the last four years. The process was found in truck bed lining specialty shops as well as in other truck-related businesses. Six different urethane products were used with reported MDI monomer concentrations of up to 75% along with varying concentrations of MDI pre-polymers and other reactants and solvents.

Sampling for MDI by inspectors found seven worksites with worker exposure in excess of the state and OSHA ceiling limit of 0.200 mg/M³. Deficiencies in respirator programs and engineering controls for MDI were cited. A review of the industrial insurance records found a total of five MDI related claims at four inspected worksites, two for new onset asthma.



It was concluded that workers in the urethane sprayed-on truck bed lining industry are at an increased risk of developing illnesses associated with isocyanate exposure. Interventions are needed to further assess the hazard as well as motivate and assist franchisers, distributors, and retailers to implement effective engineering controls and respiratory protection programs in this nationally emerging small employer industry.

A review of the Salt Lake City Technical Center Sampling database indicated that forty-three personal exposure samples have been collected for MDI since 1984 in SIC Codes 7532 and 7538. MDI was detected in seventeen of the forty-three samples collected. Three of the seventeen detectable samples were over the allowable ceiling limit of 0.200 mg/M³.

H. Health Effects From Exposure To Isocyanates or Mixtures Containing Isocyanates:

1. Immediately or up to eight hours after exposure:
 - Allergic sensitization which may appear as wheezing, shortness of breath or coughing
 - Irritation of the eyes and lungs
 - Upset stomach, vomiting
 - Possibly fevers
 - Stuffiness of the nose
 - Sore throat
 - A feeling of tightness in the chest

2. Long-term health effects may occur at some time after exposure and can last for months or years:
 - Permanent breathing or chest problems, including asthma, even when no longer exposed. Increased sensitivity. Severe asthma attacks could result if a person is exposed again even at concentrations below the established limits. Once sensitized to isocyanates a person should not be exposed to any concentration and should not be allowed to work where he or she may be exposed further.
 - Repeated or prolonged exposure of the skin to isocyanates may cause a skin rash and cause an allergic skin reaction.

I. Establishments and Site Selection

Establishments in the following NAICS codes and SIC codes shall be included in this LEP:

- 811121 - Automotive Body, Paint, and Interior Repair & Maintenance (NAICS)
- 811198 - Spray-on Bedliner Installation for Trucks (NAICS)

- 7532 - Top, Body and Upholstery Repair Shops and Paint Shops (SIC)
- 7538 - General Automotive Repair Shops (SIC)
- 7539 - Automotive Repair Shops, Not Elsewhere Classified (SIC)
- 7549 - Automotive Services, Except Repair and Carwashes (SIC)

J. Overview

This LEP will be conducted VOSH-wide. **Employers with ten or fewer employees will be included in this program** because of the high hazard associated with MDI. This initiative is comprised of three activities: targeting/selection, notification letter (outreach) with offer of consultation services, and compliance inspection. The outreach phase of the initiative will begin with the effective date of this directive. Inspections will begin 60 days after the outreach period.

1. Outreach

An outreach notification that supports the purpose of this initiative—the reduction and elimination of workplace hazards associated with occupational exposure to spraying MDI. The program includes a letter to employers explaining the purpose of the initiative and the selection criteria for the targeted participants. Employer letters will include instructions to access the VOSH website, and a reference to other sources of assistance, such as the VOSH Consultation Program.

2. Site Selection

Each region shall utilize a list of all establishments in the listed NAICS or SIC codes for their regional jurisdiction. Additions to the list will be made through any additional local knowledge and local phone and industrial directories and shall include listings for “Truck Accessories”, “Truck Body Shops” and “Truck Caps and Shells”.

After any additions to the list have been made, the region will randomize the list using a random number table or similar computerized program to develop a manageable inspection register of facilities. Establishments on the inspection register can be inspected in any order that makes efficient use of resources. When all of the establishments on a register are completed, subsequent registers will be prepared in the same way.

In the event a safety or health **complaint or referral** concerning a worksite that appears to engage in truck bed lining activities, an MDI-related inspection pursuant to this LEP will be conducted.

3. Specific Inspection Procedures

Upon entering the facility, the CSHO will verify the SIC Code of the establishment. If the SIC or NAICS industry code is not one of the six listed above, the CSHO will exit the facility and code the VOSH-1 “no inspection”. If the establishment has the proper SIC code, the CSHO will conduct a focused inspection. Inspections will concentrate on the hazards associated with MDI.

Inspection procedures outlined in the **VOSH Program Directive 02-003E** (*or its successor*) will be followed with respect to any violations found. This Program Directive covers OSHA Enforcement Exemptions and Limitations under the Federal Appropriations Act, OSHA Instruction CPL 2-0.51J, when inspecting employers with ten or fewer employees. Any employers in the above-named SIC codes that have had a comprehensive inspection in the last 3 federal fiscal years will be deleted from the register.

Apparent safety violations noted during a health inspection of an establishment exempted from programmed safety inspections shall not be cited or referred for later inspections unless such violations create an imminent danger.

K. Outreach /Training Procedures

Outreach/training visits under this program shall include checklists and manuals as determined by the Director of Cooperative Programs who shall also determine the scheduling of outreach/ training visits. Scheduling shall comply with VOSH FOM procedures. In this process, optimal use of resources and timeliness shall be considered. If an employer fails to keep his training appointment, he/she is not to be given priority in re-scheduling.

Each field office may amend the establishment list by the addition of establishments from information based on local knowledge from such sources as local media reports, trade journals, past inspection reports and accident reports should be used.

L. Compliance Inspection Procedures

Each Field Office shall use the provided industry establishment list. The following guidelines apply to scheduling inspections:

1. All establishments on the list shall be inspected, unless deleted from the list, pursuant to the FOM.
2. Establishments selected for inspection may be scheduled in any order that makes efficient use of available resources.
3. When an inspection is not conducted because the employer has refused entry, a warrant shall be sought.
4. Inspections conducted under this LEP normally shall be comprehensive.

M. Recording in IMIS. The following guidelines shall be applied when recording inspections conducted under this LEP or other inspections where spray-on bedlining activities are found:

1. For IMIS purposes, the VOSH-1 form will be completed as follows:

For Inspection Type, find item 24, and enter an “H” after the colon. (This will yield **“Programmed Planned”** on the screen.)

For Inspection Classification, find item 25c and enter a “Y” after the colon. (This will yield **“Local Emphasis Program”** on the pop-up box. Enter "BEDLINER" in all caps in the left-hand column of the pop-up box.

2. Complaints, other government agency referrals and reports from the public reporting potential hazards related to spray-on bedlining activities, shall be recorded on a VAOSH-7 (Notice of

Alleged Safety or Health Hazards) or on VOSH-90 (Referral Report), if appropriate. Follow current IMIS instructions. They shall also be recorded as unprogrammed inspections under the LEP.

3. No Inspection Conducted: When no inspection of spray-on bedlining activities is conducted, the VAOSH-1 form shall be marked "No inspection" (Item 35, marked "D" after the colon; "Close" (Item 44, marked "A"); "No Citations Issued": (Item 44, marked "B"); and "Other" (Item 45, marked "I"). Record "BEDLINER" in the space in 45I. "Opening Conference Date" (Item 20) which will be the date of entry, (enter the date--month/day/year) and "Closing Conference Date" (On Site) (Item 46) will be the date of exit (enter the date--month/day/year). Opening and closing dates are the same date when no inspection is conducted.

[NOTE: If you have any questions regarding the proper way to record in IMIS, please contact the VOSH IMIS section.]

K. Evaluation

Region III OSHA will develop an evaluation of the LEP by October 31, 2005 which will include:

1. Activity Measures
 - a. Number of inspections conducted.
 - b. Number, type and classification of violations related to MDI exposure.
 - c. Number of cases where MDI exposure was found.

2. Outcome Measures
 - a. Number of employers who implemented PPE for MDI exposure.
 - b. Percentage reduction in MDI exposure from abatement information that is forwarded to the Area Offices.

C. Ray Davenport _____

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Commissioner

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Assistant Commissioner - Programs
Directors and Managers
VOSH Compliance & Cooperative Programs Staffs
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October 28, 2005

Dear Virginia Business Owner:

The Virginia Occupational Safety and Health (VOSH) Program in conjunction with federal OSHA has initiated a Local Emphasis Program (LEP) focusing on hazards related to exposure to Methylene Diphenyl Isocyanate (MDI), also known as Methylene Bisphenyl Isocyanate, which may occur during the application of spray-on truck bed liners.

This material contains urethane products and workers can be exposed to excessive levels of these hazardous chemicals during the bed liner application process. Employees exposed to harmful levels of isocyanates may experience a variety of short-term health effects including allergic sensitization, chest tightness, fever and nausea. Long-term health effects may include permanent breathing problems, severe asthma, and allergic skin reactions resulting in rash. Office workers, sales staff, managers and other workers can also be exposed to lower, but harmful, levels of isocyanates through secondary exposure.

The goal of this LEP is to eliminate MDI overexposures during MDI-based spray-on coating operations within the Commonwealth. VOSH is instituting a 60-day grace period beginning November 1, 2005 to provide businesses the opportunity to review their current practices and correct any non-compliances. Following this grace period, VOSH will conduct inspections of workplaces within the NAICS and SIC industry codes that have been identified by federal OSHA as possible applicators of spray-on truck bed liners. We are notifying you of our intent to conduct these inspections because your company may be covered by this LEP.

VOSH and OSHA continue to emphasize compliance assistance and to focus on prevention of occupational injuries and illnesses. As part of that emphasis, compliance assistance is available through our Consultation Services Program to assist your company in enhancing its safety and health program. You can obtain information about hazard communication, respiratory protection, lockout/tagout, emergency action plans and safety and health programs by going to our Department's website, www.doli.virginia.gov, as well as for links to specific information regarding spray on bed liners and the hazards of working with isocyanates. We encourage you to take advantage of our Consultation Program to help you identify and abate hazards in your workplace at no cost to you. Companies using Consultation Services will have their inspections deferred until they have had an opportunity to complete any abatement actions called for in the consultation report.

If you need assistance in locating information on our website, you do not have access to the Internet, would like information about consultation services, or have any other questions or comments please contact one of our offices listed on the back of this letter. We appreciate your interest in protecting your employees from safety and health hazards.

Sincerely,

William Burge
Assistant Commissioner

**Virginia Department of Labor & Industry
Regional and Field Offices**

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