



Title: UCD Formaldehyde and Xylene Monitoring

Principle:

The Department of Pathology will annually test formaldehyde and xylene vapors in each laboratory within the department of pathology in which Formaldehyde and Xylene are stocked to ensure personnel exposure is within OSHA standards.

Procedure:

1. The Department Safety Coordinator will contact UC Denver Environmental Health and Safety Department, 303-724-0345, and arrange an appointment for all labs to be tested (Cytology, Histology, Gross room, and Morgue)
2. On day of the appointment schedules arrangement is made with UC Denver Environmental Health department to provide equipment over so that employee can wear at the beginning of employee shift for full 8 hours. One Technician or Technologist from each area (Cytology, Histology, Gross room and Morgue) will attach equipment and wear their entire 8 hour shift. UC Denver Environmental Health Department will advise on how to attach equipment. The personnel exposure assessment conducted will be accomplished through the use of passive dosimeter badges (used to monitor 8 hour exposure) and through active vapor sampling (to assess short term exposure using 15 minute exposure periods).
3. UC Denver Environmental Health and Safety Department will collect equipment for evaluation of concentrations measured over 8 hours and during the 15 minute short term sampling and provide detailed report.
4. Formaldehyde and Xylene Monitoring will be performed annually in the Department of Anatomic Pathology.

Written by: Gail Zander, CT (ASCP), 1/24/2014

Attachments: Formaldehyde and Xylene Monitoring Results 2013, Results 2012, and Results 2011.

References: CYP.09900

Approval of Procedure:

Medical Director Signature: *m. Scott Zander, MD*

Date: *3/24/14*

Date: September 9th, 2011

To: UCD Pathology Department

Re: CAP Air Monitoring Results

On August 24th, 2011, a formaldehyde and xylene exposure assessment was conducted for the Histology, Surgical Pathology, Cytology, and the Morgue areas at the University of Colorado Anschutz Inpatient Pavilion in Denver, Colorado. The personnel exposure assessment conducted was accomplished through use of passive dosimeter badges (used to monitor Permissible Exposure Limits (PEL)) and through active vapor sampling using National Institute of Occupational Safety and Health (NIOSH) methods (to assess short term exposure using 15 minute exposure periods). The location specific results are shown below:

Formaldehyde Results for Permissible Exposure Limits (Passive Dosimetry Monitoring—EPA TO-11 Method):

<u>Work Location</u>	<u>Date</u>	<u>Time</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.136	8/24/2011	507 min	Julia Holmes	0.20 ppm
UCH B.2309	8/24/2011	387 min	Dr. Kandasamy	0.20 ppm
UCH 3.124 and B.2309	8/24/2011	480 min	Allysse Allee	0.22 ppm
UCH 3.128	8/24/2011	480 min	Nhat Nguyen	0.049 ppm
UCH 3.124 and B.2309	8/24/2011	480 min	Tony Cerullo	0.41 ppm
Media Blank	8/24/2011	N/A	N/A	Not Detected

Formaldehyde Results for 15 Minute Exposure (Active Sample Collection—NIOSH 2541 Method):

<u>Location</u>	<u>Lab</u>	<u>Date</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.136	Cytology	8/24/2011	Julia Holmes	<0.3 ppm
UCH B.2309	Morgue	8/24/2011	Tony Cerullo	5.1 ppm
UCH 3.124	Surg. Path	8/24/2011	Allysse Allee	0.39 ppm
UCH 3.128	Histology	8/24/2011	Nhat Nguyen	<0.3 ppm
Media Blank	L18-2103	8/24/2011	N/A	Not Detected

The OSHA permissible exposure limit (PEL) for formaldehyde is 0.75 ppm in an eight hour time weighted average (TWA). The NIOSH short-term exposure limit (STEL) is 2.0 ppm for fifteen minutes for formaldehyde. Concentrations measured during the fifteen minute short-term sampling were above permissible limits for one sample taken in the Morgue—this was during the specimen dumping procedure involving formaldehyde preserving solutions. Employees working in the morgue (Dr. Kandasamy, Adrienne Ray, Tony Cerullo, and Allysse Allee) have been 1) enrolled in the respiratory protection program, 2) cleared to wear a full-face respirator, 3) trained, and 4) fit tested. Continued monitoring and medical surveillance is required for the individuals performing the specimen dumping in the Morgue. Within six months formaldehyde sampling will need to be repeated, unless a suitable engineering control can be implemented. **In addition, all employees working in the morgue during the high exposure activity (performing specimen dumping), must complete the UCD Formaldehyde Surveillance Questionnaire and submit to the Occupational Health Nurse—the form has been provided as an attachment to this report.** Those employees and students not enrolled in the respiratory protection program may not conduct high-exposure activities, such as decanting of specimens and preparing chemical mixtures. Per the lab staff, Adrienne Ray is not currently performing decanting of specimens as she is currently pregnant—these duties are mainly being handled by Mr. Cerullo and Ms. Allee.

Xylene Results for Permissible Exposure Limits (Passive Dosimetry Monitoring—NIOSH 1501 Method):

<u>Work Location</u>	<u>Date</u>	<u>Time</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.136	8/24/2011	317 min	Jamie Santistevan	6.5 ppm
UCH-3-128	8/24/2011	490 min	Nhat Nguyen	2.0 ppm
UCH 3.124 and B.2309	8/24/2011	480 min	Allysse Allee	0.41 ppm
Media Blank	8/24/2011	N/A	N/A	Not Detected

Xylene Results for 15 Minute Exposure (Active Sample Collection—NIOSH 1501 Method):

<u>Location</u>	<u>Lab</u>	<u>Date</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.136	Cytology	8/24/2011	Julia Holmes	1.3 ppm
UCH 3.128	Histology	8/24/2011	Nhat Nguyen	5.7 ppm
UCH 3.124	Surg. Path	8/24/2011	Allysse Allee	5.5 ppm
Media Blank	L18-2103	8/24/2011	N/A	Not Detected

The OSHA PEL for xylene is 100 ppm in an eight hour TWA. The NIOSH STEL for xylene is 150 ppm for fifteen minutes. Concentrations detected during the assessment are below the permissible exposure limits for xylene exposure.

If you have any questions, please contact me.

Thank you,

Justin W. Sterger

Justin W. Sterger
Environmental Health Specialist
Justin.Sterger@UCDenver.edu
(303) 724-2271



Date: November 14th, 2012
To: UCD Pathology Department
Re: CAP Air-Monitoring Results

On August 23rd, 2012, a formaldehyde and xylene exposure assessment was conducted for the Histology, Surgical Pathology, Cytology, and the Morgue areas at the University of Colorado Anschutz Inpatient Pavilion in Denver, Colorado. The personnel exposure assessment conducted was accomplished through use of passive dosimeter badges (used to monitor Permissible Exposure Limits (PEL)) and through active vapor sampling using National Institute of Occupational Safety and Health (NIOSH) methods (to assess short term exposure using 15 minute exposure periods). The location specific results are shown below:

Formaldehyde Results for Permissible Exposure Limits (Passive Dosimetry Monitoring—EPA TO-11 Method):

<u>Work Location</u>	<u>Date</u>	<u>Time</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.126/B2309.3C	8/23/2012	480 min	Alysse Allee	0.38 ppm
UCH B.2309	8/23/2012	480 min	Dr. Kandasamy	0.12 ppm
UCH 3.128	8/23/2012	480 min	Nhat Nguyen	0.07 ppm
UCH 3.136	8/23/2012	480 min	Julia Holmes	0.17 ppm
Media Blank	8/23/2012	N/A	N/A	Not Detected

Formaldehyde Results for 15 Minute Exposure (Active Sample Collection—NIOSH 2541 Method):

<u>Location</u>	<u>Lab</u>	<u>Date</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.136	Cytology	8/23/2012	Julia Holmes	0.32 ppm
UCH B.2309.4D	Morgue	8/23/2012	Dr. Kandasamy	<0.33 ppm
UCH B.2309.3C	Tissue Discard	8/23/2012	Allysse Allee	2.7 ppm
UCH 3.124	Surg. Path	8/23/2012	Allysse Allee	<0.33 ppm
UCH 3.128	Histology	8/23/2012	Nhat Nguyen	<0.43 ppm
Media Blank	L18-2103	8/23/2012	N/A	Not Detected

The OSHA permissible exposure limit (PEL) for formaldehyde is 0.75 ppm in an eight hour time weighted average (TWA). The NIOSH short-term exposure limit (STEL) is 2.0 ppm for fifteen minutes for formaldehyde. Concentrations measured during the fifteen minute short-term sampling were above permissible limits for one sample taken in the Morgue—this was during the specimen dumping procedure involving formaldehyde preserving solutions. Employees working in the morgue (Dr. Kandasamy, Adrienne Ray, Tony Cerullo, and Allysse Allee) have been 1) enrolled in the respiratory protection program, 2) cleared to wear a full-face respirator, 3) trained, and 4) fit tested. Continued monitoring and medical surveillance is required for the individuals performing the specimen dumping in the Morgue. Within six months formaldehyde sampling will need to be repeated, unless a suitable engineering control can be implemented. **In addition, all employees working in the morgue during the high exposure activity (performing specimen dumping), must complete the UCD Formaldehyde Surveillance Questionnaire and submit to the Occupational Health Nurse—the form has been provided as an attachment to this report.** Those employees and students not enrolled in the respiratory protection program may not conduct high-exposure activities, such as decanting of specimens and preparing chemical mixtures. Per the lab staff, Adrienne Ray is not currently performing decanting of specimens as she is currently pregnant—these duties were conducted by Ms. Allee during the sampling.

Xylene Results for Permissible Exposure Limits (Passive Dosimetry Monitoring—NIOSH 1501 Method):

<u>Work Location</u>	<u>Date</u>	<u>Time</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.136	8/23/2012	480 min	Julia Holmes	0.93 ppm
UCH 3.128	8/23/2012	480 min	Nhat Nguyen	2.3 ppm
UCH 3.124 and B.2309	8/23/2012	480 min	Allysse Allee	0.37 ppm
Media Blank	8/23/2012	N/A	N/A	Not Detected

Xylene Results for 15 Minute Exposure (Active Sample Collection—NIOSH 1501 Method):

<u>Location</u>	<u>Lab</u>	<u>Date</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.136	Cytology	8/23/2012	Julia Holmes	1.2 ppm
UCH 3.128	Histology	8/23/2012	Nhat Nguyen	2.0 ppm
UCH 3.124	Surg. Path	8/24/2011	Allysse Allee	2.7 ppm
Media Blank	L18-2103	8/24/2011	N/A	Not Detected

The OSHA PEL for xylene is 100 ppm in an eight hour TWA. The NIOSH STEL for xylene is 150 ppm for fifteen minutes. Concentrations detected during the assessment are below the permissible exposure limits for xylene exposure.

If you have any questions, please contact me.

Thank you,

Daniel F. Kerley
Industrial Hygienist
Environmental Health and Safety
daniel.kerley@ucdenver.edu
303-724-0249



University of Colorado
Denver | Anschutz Medical Campus



University of Colorado
 Denver | Anschutz Medical Campus

Office of Environmental & Occupational Health & Safety

Date: November 18th, 2013

To: UCD Pathology Department

Re: CAP Air Monitoring Results

On October 2nd, 2013, a formaldehyde and xylene exposure assessment was conducted for the Histology, Surgical Pathology, Cytology, and the Morgue areas at the University of Colorado Anschutz Inpatient Pavilion in Denver, Colorado. The personnel exposure assessment conducted was accomplished through use of passive dosimeter badges [used to monitor Permissible Exposure Limits (PEL)] and through active vapor sampling using National Institute of Occupational Safety and Health (NIOSH) methods (to assess short term exposure using 15 minute exposure periods). The location specific results are shown below:

Formaldehyde Results for Permissible Exposure Limits (Passive Dosimetry- MOD OSHA 1007 Method):

<u>Work Location</u>	<u>Date</u>	<u>Time</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.126	10/02/2013	480 min	Reese Cochran	0.054 ppm
UCH B.2309	10/02/2013	480 min	Dr. Kandasamy	0.060 ppm
UCH 3.128	10/02/2013	480 min	Nhat Nguyen	0.023 ppm
UCH 3.136	10/02/2013	480 min	Julia Holmes	0.038 ppm

Formaldehyde Results for 15 Minute Exposure (Active Sample Collection—NIOSH 2541 Method):

<u>Location</u>	<u>Lab</u>	<u>Date</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.136	Cytology	10/02/2013	Julia Holmes	0.018 ppm
UCH B.2309 3C	Tissue Discard	10/02/2013	Dr. Kandasamy	0.762 ppm
UCH 3.124	Surg. Path	10/02/2013	Reese Cochran	0.059 ppm
UCH 3.128	Histology	10/02/2013	Nhat Nguyen	0.296 ppm
Media Blank	L18-2103	10/02/2013	N/A	Not Detected

The OSHA permissible exposure limit (PEL) for formaldehyde is 0.75 ppm in an eight hour time weighted average (TWA). The NIOSH short-term exposure limit (STEL) is 2.0 ppm for fifteen minutes for formaldehyde. Concentrations measured in the above assessment are within the OSHA exposure limits. However, because STEL concentrations measured in past exposure assessments during the tissue discard task have been above permissible limits, the employees performing the surgical discards (Dr. Kandasamy, Adrienne Ray, Tony Cerullo, Allysse Ailee, Jennifer Choi, Josie Hoang, Caley Tong, Angela Rosario, and Jennifer Villalobos) shall remain:

1. Enrolled in the respiratory protection program,
2. Cleared to wear a full-face respirator,
3. Trained to wear a respirator, and
4. Respirator Fit Tested.
5. Continued monitoring and medical surveillance is required for the individuals performing the specimen dumping in the Morgue.

Another formaldehyde exposure study will be conducted in the Surgical Discard Area, Room AIP.B.2309 3C, within six months to ensure that the engineering controls continue to control the formaldehyde vapors in the tissue discard room. **In addition, all employees working in the morgue during the high exposure activity (performing specimen dumping), must complete the UCD Formaldehyde Surveillance Questionnaire and submit to the Occupational Health Nurse—the form has been provided as an attachment to this report.** Those employees and students not enrolled in the respiratory protection

program may not conduct high-exposure activities, such as decanting of specimens and preparing chemical mixtures.

Xylene Results for Permissible Exposure Limits (Passive Dosimetry Monitoring—NIOSH 1501 Method):

<u>Work Location</u>	<u>Date</u>	<u>Time</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.136	10/02/2013	480 min	Julia Holmes	0.68 ppm
UCH 3.128	10/02/2013	480 min	Nhat Nguyen	2.8 ppm

Xylene Results for 15 Minute Exposure (Active Sample Collection—NIOSH 1501 Method):

<u>Location</u>	<u>Lab</u>	<u>Date</u>	<u>Employee</u>	<u>Concentration</u>
UCH 3.136	Cytology	10/02/2013	Julia Holmes	0.576 ppm
UCH 3.128	Histology	10/02/2013	Nhat Nguyen	4.97 ppm
Media Blank	L18-2103	10/02/2013	N/A	Not Detected

The OSHA PEL for xylene is 100 ppm in an eight hour TWA. The NIOSH STEL for xylene is 150 ppm for fifteen minutes. Concentrations detected during the assessment are below the permissible exposure limits for xylene exposure.

If you have any questions, please contact me.

Thank you,

Daniel F. Kerley
Industrial Hygienist
Environmental Health and Safety
University of California
303-724-0249



