



hours, WISHA has developed a form that can be downloaded from <http://lni.wa.gov/Safety/Topics/AtoZ/Cholinesterase/files/2004-HandlerHoursTrackingSpreadsheet.xls> or requested by contacting EH&S.

These records must be retained for at least seven years and must be readily accessible to employees, their designated representatives, and treating health care professionals. Remember, the record-keeping requirement applies to all handling activities, even if they are below the threshold (50 hours in any consecutive 30-day period) specified in the standard.



WSU Handling Hours

Preliminary results of a survey distributed to WSU employees demonstrate that most of the handling by WSU employees is well below the thresholds for medical surveillance established in the WAC; however, the WISHA record-keeping, worker protection and other regulatory obligations still apply.



To help inform and assist users of these requirements and their associated responsibilities, EH&S is developing a Safety Policy and Procedure (SPPM) that will be available once approved.

Getting Assistance

If you have questions about the legislation or need assistance with the record-keeping requirements, please contact EH&S.



Environmental Health & Safety

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Pesticide Handling Hazards



Cholinesterase Monitoring

Cholinesterase Inhibition

Cholinesterase (ko-li-nes-ter-ace), also acetylcholinesterase, is one of many important enzymes needed for the proper functioning of the nervous systems of humans, other vertebrates, and insects. Certain chemical classes of pesticides, such as organophosphates (OPs) and carbamates (CMs) work against undesirable bugs by interfering with, or 'inhibiting' cholinesterase. While the effects of cholinesterase inhibiting products are intended for insect pests, these chemicals can also be poisonous, or toxic, to humans in some situations.



Symptoms of Overexposure

Human exposure to cholinesterase-inhibiting chemicals can result from inhalation, ingestion, or eye or skin contact during the manufacture, mixing, or applications of these pesticides.

Signs and symptoms of cholinesterase inhibition from exposure to CMs or OPs include the following:

- In mild cases (within 4–24 hours of contact): tiredness, weakness, dizziness, nausea and blurred vision;
- In moderate cases (within 4–24 hours



of contact): headache, sweating, tearing, drooling, vomiting, tunnel vision, and twitching;

- In severe cases (after continued daily absorption): abdominal cramps, difficulty urinating, diarrhea, muscular tremors, staggering gait, pinpoint pupils, hypotension (abnormally low blood pressure), slow heartbeat, breathing difficulty, and possibly death, if not promptly treated by a physician.

Fortunately, the breakdown of cholinesterase can be reversed by proper medical treatment

Legislation to Prevent Overexposure

Effective February 1, 2004, Washington State Industrial Health and Safety (WISHA) standard (WAC 296-307-148) for cholinesterase monitoring requires employers to maintain records of handling hours for all employees engaged in handling activities for OP or CM pesticides. Handling activities include:

- mixing, loading, transferring, or applying pesticides,
- disposing of pesticides or their containers,
- cleaning, adjusting, or maintaining related application equipment,
- entering an area after the application and before the inhalation exposure level listed in the labeling has been



reached.

The purpose of this standard is to offer medical monitoring to employees who handle or may be expected to handle OP or CM pesticides at or greater than threshold amounts in order for the early detection and subsequent intervention of shifts of their cholinesterase levels.

In summary, the requirements of the standard include:

- Maintain records of handling hours,
- Implement medical surveillance program offering cholinesterase testing to employees who meet or exceed handling thresholds (50 or more hours in any consecutive 30-day period),
- Evaluate Pesticide Worker Protection Program elements when employees demonstrate a 20% decrease in cholinesterase levels,
- Remove employees from handling OP or CM pesticides when recommended by their medical professional.

Required Record Keeping

If you employ or supervise anyone who handles these agricultural pesticides, you must maintain a record of the name of the handler, the pesticide used, the duration of use, and the activity involved in handling.

To assist you in tracking these