

VOLCANIC ASH INFORMATION 5

Prepared by Oregon State University's Agricultural Experiment Station and Extension Service. For more information, consult the OSU Extension Service in your county or the nearest branch Agricultural Experiment Station.

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VOLCANIC ASH--HEALTH HAZARDS

The inhalation of volcanic ash into the body has a potential, although believed to be very low, for adverse health effects after exposure. However, neither the chemical analysis of the volcanic ash nor current human experience in the state of Washington has indicated that any effects are likely to occur as a direct toxic phenomenon. Repeated inhalation of the ash does pose a potential for an acute effect from irritation of the mucous membranes of the nose, throat, or lungs. A potential for the development of a chronic disease called "silicosis" seems unlikely but is an issue that has been raised.

•Acute Health Effects: It is unlikely that any acute, severe health effect will develop as the result of inhaling the ash. Nevertheless, the substance does act as a primary irritant of mucous membranes and will be bothersome to some individuals. Those individuals who have pre-existing lung disease such as emphysema from any of a variety of known mechanisms, chronic bronchitis, or recurrent asthma might be considered more susceptible than others to acute health problems. It is best that these people wear some type of face mask during periods of heavy exposure.

Since the May 18, 1980, eruption of Mount St. Helens, considerable experience has been gained in the eastern Washington area, where ash fallout was heaviest. A review of physician visits in the weeks immediately after the eruption indicates that two patterns emerged that may have been related to the ash fallout.

Accidents and Injuries: A number of ash-related accidents and injuries

occurred in the first week after the eruption. These were related principally to motor vehicle accidents and falls, probably due to the change of surface texture from the ash.

Respiratory Conditions: As expected, most people who developed respiratory problems from the ash were those with pre-existing lung disease such as emphysema, bronchitis, or asthma. Increases in respiratory illnesses were noted for several weeks after the eruption with principal illnesses seen from bronchitis, increased severity of emphysema complaints, and increased numbers of ear infections. The latter may have been related to the irritation from the ash with secondary blockage of passages from the ear to the nose.

The above further suggests a value from using face masks during periods of heavy exposure.

•Chronic Health Effects: The principal clinical concern arising from repeated inhalation of ash appears to be a potential for the development of a chronic lung disease called silicosis. The lung becomes scarred, losing its elasticity and ability to transport oxygen. This disease has been studied widely in industry. It is known that the disease occurs only under conditions of heavy exposure, usually over a period of years, and only where there are small-sized particles of crystalline silica. During periods of air pollution alerts, the current allowable levels in industry for total silican are exceeded. Analysis of the volcanic ash has shown that up to 6% is in the crystalline form. Pre-

cautions should therefore be considered during such times. For most of the public, a simple measure would be the use of a fiber or cloth mask to prevent inhaling the larger particles.

Because they have not been studied, the effects of the inhalation of ash by children is not completely known, although it would appear that the major concern would be for infants. In cases of noticeable dust fallout, some restriction of activity of children seems wise, particularly with exposure in dusty areas such as might occur alongside streets, or possibly in heavily used playgrounds.

• Recommendations for the General Public: When a particulate alert occurs, all persons in an affected area should limit unnecessary outdoor activities such as mowing lawns, unnecessary driving, jogging, etc. If outdoor activity is planned, use a simple face mask. The major areas of concern have been alongside streets that are heavily trafficked, because automobiles kick up dust normally quiescent and lying on the ground.

Those in occupations that involve heavy exposure to ash should wear a face mask approved by the National Institute of Occupational Safety and Health (NIOSH). People who continue to jog or exercise by walking or bicycling should avoid heavily traveled streets because of the dust stirred up by cars, and should wear some type of simple mask. Persons who smoke should be aware that there may be an additive effect between smoking and the inhalation of the volcanic ash.

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