

GUIDELINES FOR EMPLOYERS ON PROTECTING EMPLOYEES FROM THE EFFECTS OF HAZE

[UPDATED 19 MARCH 2014]

Introduction

1 Under the Workplace Safety and Health (WSH) Act, the primary responsibility for ensuring an employee's safety and health at work lies with the employer. Hence, it is incumbent upon employers to carry out a proper risk assessment and to implement appropriate measures, including specifying when to restrict work, so as to ensure that risks identified are minimised or mitigated.

2 This set of guidelines provides employers with general measures to minimise or mitigate the effects of haze on their employees. Additional measures specific to the work requirements and health conditions of the employees should be instituted based on the risk as assessed by the employers. The health effects depend on the severity of the smoke haze as benchmarked against the PSI (Pollutant Standards Index) reading, the health conditions and level of activity of the employee. The PSI stated in these guidelines refer to the revised 24-hour PSI issued by the National Environment Agency (NEA), which is available online at www.nea.gov.sg/psi.

Preparation

3 Following the announcement of an increased risk of haze by NEA, employers should review the following preparations to protect the safety and health of employees against the effects of haze:

- a. Identify susceptible employees¹
- b. Identify types of outdoor work² to be reduced when there is haze
- c. Determine criteria for restricting outdoor work
- d. Conduct mask fit testing for employees who are still required to work outdoors and ensure sufficient stock of suitable masks
- e. Improve efficiency of air cleaning devices

¹ This refers to employees with chronic heart or lung disease, elderly employees, or pregnant employees. Please refer to the MOH health advisories for further information.

² Outdoor work is work that is carried out outside buildings regularly or most of the time.

- f. Implement haze communication system between employer and employees.

Management of outdoor work

4 Depending on the air quality, prolonged³ or strenuous⁴ outdoor work should be reduced, minimised or avoided. Risk assessments, taking into account the effects of the haze, individual employee's health and working conditions, should be conducted. Risk mitigating measures should be adopted. Examples of such measures may include:

- a. The use of mechanical aids (e.g. trolleys, hoists) for transporting or carrying heavy objects, instead of manual lifting or carrying.
- b. Adjust work assignments or rotate jobs to shorten the time spent in outdoor work.
- c. Schedule sufficient indoor rest breaks for workers performing outdoor work.
- d. Ensure adequate hydration for workers.
- e. Monitor employees' health by encouraging feedback on any symptoms that may occur.
- f. Defer non-essential work.

5 If prolonged or strenuous outdoor work is not avoidable at higher PSI, and an employer still requires an employee to do so due to extenuating circumstances, suitable masks (e.g. N95 masks) should be provided.

6 Employers should bear in mind that the use of masks may increase the effort of breathing especially during physical exertion. For some employees, they may experience discomfort in breathing, tiredness or headache. This may be due to their masks causing increased resistance to breathing, and a reduction in the volume of air breathed. Employers should consider instituting regular breaks, slow down pace of work and encourage hydration of employees using masks. At any time, if employees experience breathing difficulty from wearing masks while working outdoors, employers should deploy them to work indoors where the pollutant concentration may be lower. Risk assessment, taking into account the usage of the masks, individual employee's health conditions and nature of outdoor work should be conducted. Elderly and pregnant employees as well as those with chronic heart/lung disease should consult their doctors on the usage of masks.

³ Prolonged = continuous exposure for several hours.

⁴ Strenuous = involving a lot of energy or effort.

7 Additionally, visibility factors should also be taken into account, e.g. risk assessments should be conducted to determine whether outdoor lifting operations involving tower and mobile cranes should cease due to the foreseeable risk of poor visibility, so as not to compromise safety of persons at work. Such work can only be carried out when appropriate precautions have been taken to reduce the risk.

8 Table A provides an overview of the guidelines based on the 24-hour PSI. Employers should note that environmental conditions may fluctuate throughout a work day and factor this into their risk assessments.

Provision of suitable protective equipment

9 It is the duty of employers to provide suitable masks (e.g. N95 masks) to employees where warranted. Factors to consider in the selection of suitable masks including the nature and levels of pollutants, work tasks and conditions, operator-related factors and any accessories used together with the masks. The purpose of the mask is to ensure that users are adequately protected from inhaling the pollutants and the appropriate masks should be selected for use when required. As an example, for particulate matter (PM2.5 and PM10), the correct type of mask is one which is capable of filtering out about 95% of very fine particles, such as N95 mask or equivalent.

10 Employers should ensure that employees who need to wear masks or respirators are fit-tested and that sufficient stock is available. Training should be conducted and supervision provided to ensure correct usage. Masks should be changed when soiled/physically damaged or when the wearer finds it hard to breathe. Reference should be made to the Singapore Standard SS 548:2009: Code of Practice for Selection, use and maintenance of respiratory protective devices.

11 Suitable eye protection (e.g. goggles) should be provided when there is eye irritation. However, interaction with masks should be considered when other personal protective equipment is used.

Enhancing protection for indoor work

12 Please refer to NEA's website for information on how you can improve the air quality for both non air-conditioned and air-conditioned workplaces with the use of suitable air cleaning devices. (<http://app2.nea.gov.sg/anti-pollution-radiation-protection/air-pollution-control/haze/portable-air-cleaners> and <http://app2.nea.gov.sg/anti-pollution-radiation-protection/air-pollution-control/haze/air-cleaning-devices>)

13 To enhance the protection offered by remaining indoors, measures should be taken to reduce haze infiltrating indoor air by keeping windows and doors closed most of the time.

Communication on haze

14 A system should be put in place to update employees regularly on the mitigating measures taken by the organisation to minimise the safety and health effects of haze on employees. The system should include channels for employees to report adverse effects suffered as a result of the haze.

15 For queries on these guidelines, please contact the Ministry of Manpower.

MOM Contact Centre, Tel: (65) 6438 5122

Online Enquiry via this [link](https://secure.mom.gov.sg/feedback/) (<https://secure.mom.gov.sg/feedback/>)

Website: www.mom.gov.sg

TABLE A: OVERVIEW OF GUIDELINES FOR EMPLOYERS ON PROTECTING EMPLOYEES FROM THE EFFECTS OF HAZE

24-Hour PSI	Healthy employees	Elderly, pregnant employees	Employees with chronic lung disease, heart disease	General measures to be taken by employers
≤100 (Good/Moderate)	Normal activities	Normal activities	Normal activities	<ul style="list-style-type: none"> • Initiate preparatory measures to protect the safety and health of employees against the effects of haze
101-200 (Unhealthy)	Reduce prolonged or strenuous outdoor work	Minimise prolonged or strenuous outdoor work	Avoid prolonged or strenuous outdoor work	<ul style="list-style-type: none"> • Take risk mitigating measures such as use of mechanical aids, job rotation, instituting indoor rest breaks, ensuring adequate hydration etc
201-300 (Very Unhealthy)	Avoid prolonged or strenuous outdoor work	Minimise outdoor work	Avoid outdoor work	<ul style="list-style-type: none"> • Take risk mitigating measures such as use of mechanical aids, job rotation, instituting indoor rest breaks, ensuring adequate hydration etc • If prolonged or strenuous outdoor work is not avoidable, and an employer still requires an employee to do so due to extenuating circumstances, masks should be provided
> 300 (Hazardous)	Minimise outdoor work	Avoid outdoor work	Avoid outdoor work	<ul style="list-style-type: none"> • Take additional risk mitigating measures such as job redeployment,

24-Hour PSI	Healthy employees	Elderly, pregnant employees	Employees with chronic lung disease, heart disease	General measures to be taken by employers
				<p>reducing the intensity and duration of outdoor work, institute regular breaks or deferment of non-essential jobs.</p> <ul style="list-style-type: none"> • If outdoor work is not avoidable, and an employer still requires an employee to do so due to extenuating circumstances, masks or appropriate respirators should be provided • Risk assessment should consider the additional risk posed by poor visibility for work activities such as lifting operations involving tower and mobile cranes

Prolonged = continuous exposure for several hours
 Strenuous = involving a lot of energy or effort
 Reduce = do less
 Minimise = do as little as possible
 Avoid = do not do

