



TECHNICAL INFORMATION SHEET 45

GUIDANCE FOR THE PROTECTION OF VEHICLE CREW WORKING IN ALL WEATHER CONDITIONS

Background

Weather conditions affect the everyday lives of all employees. Vehicle crews have to cope with a variety of weather conditions. The weather conditions can have an impact on their overall health and safety, their level of alertness as well as their comfort and efficiency. In addition, seasonal changes, for example, the amount of daylight, can also have an impact. The effects from the weather may not be noticeable straight away, and it may take a period of time until the effects are observable and / or detected. Furthermore, the predicted weather conditions need to be taken into account; that is, equipping the person for the duration of their shift, to cope with the weather conditions in the areas into which they will drive, as well the weather conditions at their home depot at the start of their shift.

Drivers, and any additional vehicle crew, have to operate within at least two environments. They work inside a vehicle, within a relatively controlled (covered and heated) environment, and need to be equipped for safe driving. They also have to work outdoors, in a wide variety of weather conditions, to receive and deliver product, to connect and disconnect hoses, to operate vehicle controls, for handling cylinders, etc., and will require appropriate protection to cope with the hazard(s) of the product, the surroundings, as well as local weather conditions. This protection will have to be suitable to allow them to remain outdoors for the duration of their task(s).

All task(s) required to be performed should be risk assessed. Following the assessment it is probable that the control measures will include the provision of appropriate personal protective equipment.

This document provides guidance for vehicle operators and crews, but it may also provide useful guidance in principle for many others who are required to work outdoors.

Working inside a vehicle

At all times the driver is responsible for the safety of the vehicle. During any journey the vehicle crew will be in a controlled environment that offers some protection from the external conditions. The driver shall wear clothing and protective equipment that allows safe operation of the vehicle. This includes all-round visibility, good posture, a reasonable working temperature, freedom of movement, no distractions or other sensory impairment, etc.

Inside a vehicle, crew will still be affected by climatic conditions, for example, sunlight and glare.

Working outside a vehicle

Outside a vehicle the crew will be subject to the weather. The weather changes, whether on an hourly, a daily basis, or through seasonal variation. The protective equipment used by the vehicle crew will be dependent on a variety of factors, including:

- the product(s) being carried on the vehicle;
- the actual and anticipated weather conditions;
- Surroundings, for example, potentially explosive areas, construction site proximity, etc.;
- Customer and own-site rules for the use of personal protective equipment.

Some of the challenges and considerations include:

- **Exposure to the sun**

Exposure to sunlight is necessary for good human health, but over-exposure can cause sunburn and dehydration. In the longer term there is potential for premature aging of the skin and skin cancer(s).

Risks are not identical for everyone. Some people, for example, those with fair or freckled skin that doesn't easily tan, or goes red or burns before it tans, red or fair hair and light-coloured eyes and / or who have a large number of moles, are often at greater risk.

A tan may be a sign that the skin has been damaged. The damage is caused by ultraviolet (UV) rays in sunlight. Skin damage may include sunburn and blistering or may be invisible. Skin cancer is one of the most common forms of cancer in the UK with over 50,000 new cases every year.

- **Working in hot conditions**

Heat stress occurs when our bodies aren't able to control their internal temperature, usually at a high ambient temperature. It has effects such as a loss of concentration, cramps, extreme thirst, exhaustion, fainting and, most severely, heat stroke.

Heat stress can be brought on and exacerbated by factors including humidity, restrictive or excessive clothing, lack of shade and/or an increased work rate.

- **Working in cold conditions**

Cold stress occurs when our bodies aren't able to control their internal temperature, but at a low ambient temperature. Early signs can include shivering, teeth chattering and a slowing down of activity. In extreme conditions these can lead to frost bite and hypothermia, which can be life-threatening.

Cold conditions can cause blood vessels to quickly narrow, reducing the flow of blood to the body's surface (to protect vital organs). Sometimes the blood vessels dilate and burst, which causes redness. This can also numb areas, such as hands. Cold conditions affect flexibility and increases the risk of injury, for example, a sprain or pulled muscle.

The effects of cold temperatures can be greatly increased in wet and / or windy conditions.

- **Working in wet conditions**

Working in wet conditions requires clothing to keep personnel dry. This clothing should not restrict movement, and headwear should not limit visibility. Some types of clothing may be permeable and may become saturated with water; this will increase their weight and decrease their effectiveness. This type of equipment is generally unsuitable for use in wet conditions.

Wet gloves shall not be used by vehicle crews who are operating vehicles containing cryogenic products. Contact with materials which are at very cold temperatures, such as valves, hoses, etc. can cause wet gloves to get very cold and potentially freeze, restricting mobility and providing no protection to the wearer. Where gloves are considered necessary, more than one pair of gloves shall be provided to the vehicle crew such that dry equipment is always available.

The effects of cold temperatures can be greatly increased in wet conditions.

- **Working in high wind conditions**

Wind chill. Both air temperature and the wind speed affect how cold a person will feel. Wind chill is the term used to describe the rate of heat loss from the body from the combined effect of temperature and the wind speed. The temperature experienced by the body in windy conditions can be significantly lower than the ambient temperature.

Increased wind speed will have an effect on objects and people. Movement can become less stable, and manoeuvring objects, such as cylinders, hoses, opening vehicle doors, etc. can become hazardous. There is also a hazard from wind-borne debris.

The effects of windy conditions can be greatly increased at low temperature.

- **Seasonal changes**

Various seasonal changes may have an effect, for example during the winter months, driver efficiency and levels of alertness can decrease as an individual's body clock adjusts to the limited number of daylight hours.

Management of the environment

All foreseeable environmental conditions to which the vehicle crew may be exposed should be included in the task risk assessment.

As part of the requirement to work in foreseeable weather conditions, the use and carriage on the vehicle of additional equipment to support the crew whilst away from base, should be considered. This may include equipment to assist in the event of a vehicle break-down or where a vehicle is stranded.

Additional guidance, information, instruction and training, should be considered for all personnel working in extreme conditions.

Fleet operators shall carefully consider under what conditions they shall cease or restrict their activities. This may help in managing the requirements for specific personal protective equipment. For example, cessation or restriction of activities should be considered in respect of:

- low or high ambient temperatures;
- snow;
- high winds;
- specific vehicle faults, for example, failure of heating or air conditioning systems.

- **Cold environments**

When setting people to work in cold environments, vehicle operators shall:

- promote the availability of warm fluids such as soup or hot drinks;

- consider the adequacy of rest breaks and delaying the work. Is there an opportunity for the work to be rescheduled, for example, in milder conditions;
- provide clothing with suitable thermal insulation and protection from the wind and rain, including headwear;
- provide gloves with suitable thermal protection, but which still allow sufficient dexterity to carry out manual handling activities, safely operate controls, valves, etc.;
- for conditions of sun-glare or during snowy conditions, assess the requirement for wearing suitable sun glasses during daylight hours;
- in snow and ice provide suitable footwear, for example, in terms of insulation and grip;
- where necessary, provide skin protection such as lip salve, sun-creams, etc. with a suitable factor of protection. These items should be accompanied by appropriate instruction;
- inform workers about working in cold conditions, for example, recognising the importance of avoiding cold stress.

- **Hot environments**

When setting people to work in hot environments, vehicle operators shall:

- assess the need for protective equipment, for example, hats, and provide as necessary;
- where necessary, provide skin protection such as lip salve, sun-creams, etc. with a suitable factor of protection. These items should be accompanied by appropriate instruction;
- assess the requirement for wearing suitable sun glasses in specific conditions;
- consider options for rescheduling work to more suitable conditions, for example, cooler times of the day;
- ensure adequate rest breaks are taken and that personnel are instructed to make use of shade to improve thermal comfort;
- promote the availability of drinking water;
- assess the need for and take into consideration the extra burden of wearing / carrying equipment;
- provide guidance on where it will be safe and appropriate to remove personal protective equipment, for example, during rest breaks;
- inform workers about work in hot environments, for example, recognising the early symptoms of heat stress.

Risk assessment

The risk assessment(s) that is carried out should include a specific focus on the foreseeable weather conditions. These lists are not definitive, but the risk assessment shall consider:

- **Activities:**

- working in hot conditions, for example, bright sunshine, glare, direct sun, humidity;
- working in cold conditions, for example, above freezing, below freezing, surface ice, black ice, frost, falling snow and settled snow;
- working in wet conditions, for example, drizzle, light and heavy rain, hail, combined wet and windy conditions;
- working in mists and fog, for example, no-wind conditions, freezing fog;
- working in storm conditions, for example, hail, thunder and lightning;

- working in snow conditions, for example, light and heavy, settled, falling;
 - working in windy conditions, for example, gales, gusts, strong winds.
- **Hazards caused by weather:**
 - low temperatures, leading to freezing, ice, snow, frost, etc.;
 - low temperatures, from wind chill, etc.;
 - poor visibility, from fog, mist, rain, surface water, glare, dazzle, etc.;
 - poor stability and traction, from slippery surfaces, ice, increased winds, etc.;
 - factors directly associated with personal protective equipment, for example, movement, additional or thicker clothes, over or under insulation, etc.;
 - restricted access, from snow, etc.;
 - difficulty in handling equipment, cylinders, hoses, valves, etc., from increased winds, slippery surfaces, etc.;
 - wind bourn debris, from increased winds, etc.;
 - electric shock, from electrical equipment, wet conditions, lightning strikes, etc.;
 - high temperatures, from too much sunshine, humidity, etc.;
 - increased body temperatures, from external heat, humidity, etc.
- **Potential harm to an outdoor worker**
 - sunburn, heatstroke, dehydration;
 - poor visibility, increasing the risk of unintended contacts, knocks, etc.;
 - slip trips and falls;
 - frostbite, hyperthermia numbness of limbs, stiffness of joints;
 - decrease blood flow;
 - lack of concentration;
 - poor dexterity;
 - lack of hazard awareness;
 - stains and pulled muscles;
 - being struck with wind bourn objects / debris;
 - reduced blood flow;
 - external activities, for example, carried out by others.

Personal protective equipment

Vehicle operators shall comply with the *Personal Protective Equipment Regulations 2002*. A work activity risk assessment shall determine the requirement for the use of hazard controls, including, where necessary, for personal protective equipment (PPE). PPE may only be considered as a control to achieve an acceptable level of residual risk after higher levels of control have been addressed but found not to reduce the risk to a level as low as is reasonably practical, for example, elimination, substitution, etc. Where PPE is required a PPE Assessment shall be carried out by a competent person. PPE shall be provided as required by the *Personal Protective Equipment Regulations 2002*. The PPE shall be selected for a particular task and location and shall be appropriate and chosen to effectively manage any residual risk. Thus there are different PPE requirements for differing products, for different tasks, for different situations and for different personnel. Where relevant, consider the requirements of the *Control of Substances Hazardous to Health Regulations 2002*, in relation to assessing risks, along with any relevant equipment publications, manufacturers information and the product(s) Safety Data Sheet.

HSE L25, *Personal Protective Equipment at Work*, provides guidance on the *Personal Protective Equipment Regulations 2002*. EIGA Document 136, *Selection of personal protective equipment*, provides guidance for selecting and using PPE at work.

PPE shall be inspected from time to time, by users, managers and supervisors.

During the PPE assessment consideration should be given to the use of the following PPE:

- thermal under clothing, supported by recommendations for wearing layers of clothing suitable for cold temperature environments;
- suitable headwear, for example, safety helmet, thermal liners. Where selected, ensure these items do not obstruct, for example, helmet adjusters, ear defenders, etc.;
- suitable face and eye protection, compatible with other PPE, for example, headwear, neckware, ear defenders, etc.;
- neckware including back of neck protection, for example, hoods, neck warmers, scarfs, etc.;
- waterproof and windproof upper body and leg wear;
- gloves which are suitable for the task(s), for example, handling cylinders or receiving/delivering liquid product. Gloves should be waterproof, warm but remain dexterous, including spare pair(s) and, as necessary of different types;
- footwear appropriate to the weather conditions, including socks, boot liners and boots.
- PPE with hi-visibility marking to increase the visibility of the crew.

The assessment should consider PPE which is appropriate for being inside the vehicle, and which allows for safe driving, as well as PPE for use outdoors.

Consideration should be given to the practicality of donning and removing PPE and other items as crews enter and exit the vehicle. The storage and availability of PPE on the vehicle shall be included in the risk assessment.

The control measures should also consider:

- provision and application of sun protection cream and lip salve. The minimum protection factor shall be ascertained included in the risk assessment;
- availability of, and storage for, food and drink, for example, water / fluids, hot / cold depending on the weather conditions;
- clear instruction, guidance and training on the PPE, if it is optional or mandated for use, how and when it is to be used, stored, etc;
- looking after PPE to ensure it remains suitable, is maintained and is fit for purpose. For example, drying wet clothing during and at the end of the shift.

For more information:

UK Legislation

www.legislation.gov.uk

Health and Safety Executive (HSE)

www.hse.gov.uk

European Industrial Gases Association (EIGA)

www.eiga.eu

British Compressed Gases Association (BCGA)

www.bcgaco.uk

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