GLASS Charter
Health & Safety Initiative for the UK Glass Industry
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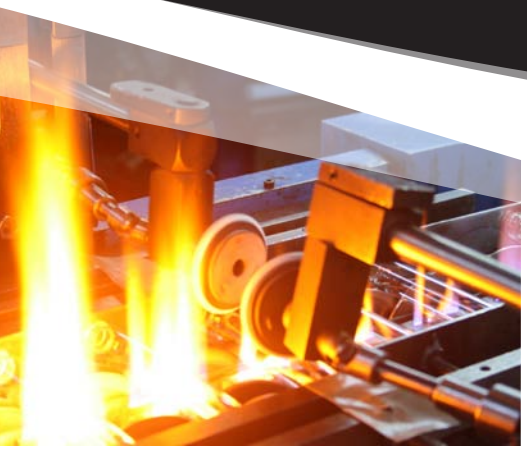
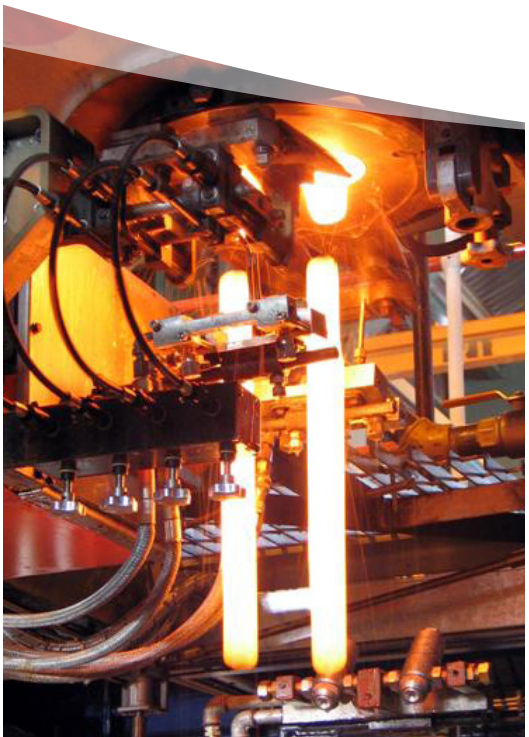
British Glass

GUIDANCE

MANAGING WORKING IN ELEVATED TEMPERATURES





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SCOPE

Recent studies have pointed to the possibility that operators in glass manufacturing sectors may be subjected to potentially high levels of thermal stress and there is potential that they may suffer from heat related illness.

This guidance concerns working in elevated temperatures in glass manufacturing, which as a guide would entail moderate working in an environment at or above 26°C (Wet Bulb Globe Temperature), however, strenuous work or heavy/impermeable clothing would make this guidance appropriate at lower temperatures. It is documented that potential problems can arise for non-acclimatised workers doing strenuous work in temperatures as low as 18°C (Wet Bulb Globe Temperature) with little or no air movement – protective clothing could lower this value further.

This guidance has been prepared to help employers understand where this may occur in glass manufacture, recognise the symptoms and ensure that any necessary control measures are understood and implemented.

Employers in glass manufacturing sites should use this guidance to assess whether such effects could occur and take the recommended remedial action. The good practice advice provided in this guidance should be followed to minimise the risk of heat illness.

This document is intended to provide guidance for employers in glass manufacturing and their employees and safety representatives. British Glass will continue to review exposure within the industry and scientific developments and will provide further information in the future.

ABOUT THE HAZARD

Working in high temperatures and high humidity can not only cause serious illness, but also loss of concentration leading to accidents, unsafe acts and lower productivity.

There are examples of heat related medical problems caused by heat stress in industrial, military, rescue and leisure industries and a key factor in many of these cases is the level of understanding of working in hot conditions – both behaviourally and physiologically. Task performance, co-ordination and judgement can also be detrimentally affected by exposure to elevated temperatures – in some industries this has been shown to affect levels of unsafe acts and accidents.

SYMPTOMS

Humans need to maintain their body core temperature within narrow limits. When the body is unable to eliminate excess heat through increased blood flow and sweating, body temperature rises from the normal core temperature of 37-38°C and the heart rate increases.

Initial Symptoms

The following initial symptoms can be an indication of the onset of heat illness:

- Loss of interest in the task;
- Difficulty in remaining alert or the inability to concentrate;
- Dizziness;
- Fatigue;
- Discomfort and the desire to seek more comfortable surroundings;
- Irritability.

These initial symptoms can progress to a loss of co-ordination and dexterity, presenting significant safety and production implications.

HEAT-RELATED ILLNESSES

Heat Stroke

If the total heat load, including environmental conditions and metabolic heat generation, is such that sufficient body heat cannot be lost to the environment then core body temperature will rise. If this continues it is possible that the body temperature may exceed its controllable limits. Wet and humid conditions may cause a reduction in sweating due to swelling and blocking of sweat glands, alternatively sweating may also cease due to depletion of body water. This decrease in sweating promotes a further, often rapid, rise in core temperature to around 39°C, beyond which point collapse may occur, and to above 41°C where heat stroke may occur.

Heat stroke involves a major disruption of the central nervous system and at body temperatures above 40°C an individual's mental functions are severely disturbed and sweating often stops. Normal temperature control mechanisms are lost and a further rapid temperature rise occurs. Symptoms include unconsciousness, convulsions, mental confusion and failure of the central nervous thermoregulation and sweating. A casualty will be hot, dry and flushed with a fast pulse and core temperature probably above 41°C. Heat stroke is an acute and potentially fatal condition and requires immediate medical attention. Controlled cooling of the body is essential.

Heat stroke can be of sudden onset and have no warning, but may be preceded by headache, dizziness, confusion, faintness, restlessness or vomiting – the same symptoms as heat exhaustion. The onset of heat exhaustion, or other heat-induced ill-health effects as described below, is emphasised and should be noted as an indication of the potential for more serious debilitating illness. The change from normal aches or tiredness to serious symptoms may not be obvious to the casual observer and therefore exposed individuals, their colleagues and supervisors, must be trained to recognise their onset. As transition from moderately elevated body temperature to heat stroke can be very rapid, no individual should work alone or without supervision under potential heat stress conditions.

Additional symptoms can include:

- Cessation of perspiration – skin is hot and dry to the touch and may become blotchy and red colouration, lips may have a bluish appearance;
- Disorientation – can become severe;
- Dilated pupils with a glassy stare;
- Shivering and other uncontrollable muscular contractions;

- Irrational and aggressive behaviour;
- Loss of consciousness and convulsions.

Heat Syncope (Fainting)
This is caused by a reduction in blood pressure to the brain. This condition is more likely to occur in those not acclimatised during early exposure to the heat. Recovery should be rapid if the patient lies down with legs raised above their head. This condition can become serious if the patient is held upright or injured in a fall – in which case brain damage or death may occur.

Heat Exhaustion
This is a response to exposure to elevated temperatures and results from a combination of thermal and cardiovascular strain.

Symptoms include: Feeling of being unwell, including tiredness, headaches, dizziness, nausea, vomiting; Breathing difficulties or shallow, rapid, respiration; Rapid pulse, which may be pounding or weak; Extreme thirst and dry mouth; Muscle cramps, particularly in the stomach and legs; Poor co-ordination and control, stumbling, weakness; Irritability.

Heat exhaustion may also be accompanied by a small increase in body temperature (38-39°C). Dehydration, and less commonly salt depletion, may contribute to the development of this condition.

Heat Oedema
Swelling of the ankles and feet, usually occurring among those unacclimatised to the heat in the first week of exposure. This condition is usually alleviated by rest or returning to a cooler environment.

Prickly Heat, Heat Rash
Red papules on the skin, usually where clothing is restrictive and persistently wetted by sweat, and gives rise to a prickling sensation – especially as sweating increases. Papules can become infected unless treated. Heat Rash is not dangerous, but can result in patchy areas of skin that are temporarily unable to produce sweat – this can adversely affect evaporative heat loss. If heat rash is suspected the individual should be referred for a medical opinion, but in most cases the rashes disappear when the individual is returned to cool environments and sweating capacity has been shown to recover within three or four weeks of onset.

Heat Cramps
Painful muscle spasms can occur in individuals working in the heat – usually in muscles used during work or in the stomach. This is caused by salt deficiency, when salt is lost during severe sweating and water is taken without replacing lost salt. The condition may have delayed onset and is most likely in those unacclimatised to the heat or having a low dietary salt intake. Cramps can be alleviated by rest, ingestion of water and correction of body fluid electrolyte imbalance, and by massage or muscle stretching. Adequate salt intake with a balanced diet and acclimatisation should prevent occurrence.

Illnesses Exacerbated by Heat
Working in elevated temperatures increases the load on the body – in particular the circulatory system – and illnesses affecting this system may be exacerbated. Some other illnesses can also be exacerbated by heat, but do not necessarily render the individual unsuitable for the work. Examples of illnesses exacerbated by elevated temperatures include dermatitis and fungal Infections.

RISK ASSESSMENT

Some work activities carry an increased risk of exposure to elevated temperature and should be avoided where possible. However, there are times when there is no alternative to working in hot conditions and these circumstances require special consideration. Risk assessments should be carried out, safe systems of work designed and appropriate control measures implemented to control the duration and extent of exposure.

Examples of such work may include:

- Changing Orifice Rings;
- Changing Furnace Cameras;
- Repairing Furnaces;
- Working at Lehr Mouth;
- Working on Forehearth;
- Working on Lehr Heaters/Fans;
- Working on Crowns;
- Cleaning Regenerators;
- Clearing Obstruction from Feeder Bowls;
- Changing Water Boxes on Batch Feeders;
- Working on High Batch Conveyor Systems above Furnaces;

It is important that glass manufacturers identify all activities in their factories where exposure to high temperatures, or thermally stressful conditions, is likely.

Persons unfamiliar with working in thermally stressful conditions, such as contractors or service engineers, may be at increased risk from heat illness. Management must ensure that they understand the danger and have assessed the risk and identified precautions. There are some precautions that will be your responsibility as host employer - verify that everyone knows what has to be done and who will do it.

Contractors should be informed of the potential risks well in advance of scheduled works and employers may need to help them to prepare for working in thermally stressful conditions – especially if the contractor does not have experience in similar workplace environments. Additional supervision and support may need to be considered for contractors who will need to work in areas of elevated thermal stress.

Measures should follow hierarchy of control identified in schedule 1 of the *Management of Health and Safety at Work Regulations 1999*:

- Avoid the risk altogether – e.g. can work be scheduled when there is no thermal risk?
- Combat the risk at source – e.g. can engineering controls be introduced to reduce the severity of exposure?
- Adapting working practices – e.g. does entry into very hot and humid areas have to take place as frequently?
- Take advantage of technological and technical progress;
- Take measures as part of a coherent policy and approach;
- Giving priority to those collective measures which protect the whole workplace and all exposed – i.e. over personal protective equipment (PPE);
- Always provide appropriate information, instruction and training;
- Promote a positive and active health and safety culture.

Assessing the Heat Risk

The risk of injury from heat illnesses, rather than the acute risk of burns, is a cumulative risk determined by, among other factors:

- Air temperature;
- Type of heat – radiant, convective, conductive;
- Humidity;
- Air movement;

- Duration of exposure and repeated exposures within a shift;
- Level of physical activity;
- Amount and type of clothing and PPE worn.

Thick, impervious, clothing and respiratory protection particularly impedes heat loss and can cause additional risk during physically demanding tasks. Even in environments as low as -22°C, strenuous work and impervious clothing have been shown to create a heat stress risk. BS EN 9920, *'Ergonomics of the thermal environment - Estimation of thermal insulation and water vapour resistance of a clothing ensemble'*, gives clothing insulation values.

It is not possible to estimate the strain placed on the body by looking at any one of these factors in isolation. A number of heat stress indices have been developed which aim to integrate these variables to give a single value which represents the amount of physiological strain produced by a given situation. Not all indices provide useful information given the radiant heat in glass manufacture. Instead suggested good practice is to apply the Wet Bulb Globe Temperature (WBGT) as a screening index and then, if a problem is indicated, a more complex index such as BS ISO 7933, *'Ergonomics of the thermal environment - Analytical determination and interpretation of heat stress using calculation of the predicted heat strain'*, or the Heat Stress Index (HIS) to examine the contributory factors and investigate control measures.

In some situations, it may be more appropriate to measure radiant flux directly or conduct physiological monitoring, and establish withdrawal criteria under the supervision of an occupational health professional. BS ISO 12894, *'Ergonomics of the thermal environment. Medical supervision of individuals exposed to extreme hot or cold environments'*, and BS ISO 9886, *'Ergonomics. Evaluation of thermal strain by physiological measurements'*, provide guidance on these issues. British Glass will continue to monitor scientific developments in monitoring following the initial study, *'Reliable Industrial Measurement of Core Body Temperature'*, conducted by the Institute of Occupational Medicine Ltd.

Further information and resources are provided in the *'References and Further Information'* section of this document.

Reducing the Risk

Consider the following measures, bearing in mind that they may not be practical for every situation. Take care not to introduce additional hazards such as ignition of insulating materials, entanglement of protective clothing or air hoses.

Even after the application of engineering controls, risk assessment will often highlight the need for carefully designed safe systems of work. The HSE website on workplace temperatures, found at www.hse.gov.uk/temperature, provides useful information on risk reduction.

Examples of controls include:

- Ensure that the tasks to which the system of work applies has been defined;
- Ensure that any necessary procedures for plant isolation have been defined;
- Ensure that employees and contractors have been subjected to relevant medical assessment;
- Ensure that shift arrangements take account of the need for an acclimatisation period;
- Ensure that all employees and contractors have been properly trained in the system of work;
- Ensure that all supervisors and employees have been made aware of the potential symptoms of exposure to elevated temperatures;
- Ensure that arrangements have been made to avoid lone working in situations

where workers are likely to be exposed to elevated temperatures; for example a buddy system in which individuals are responsible for observing workmates for early symptoms of exposure.

- Ensure that all necessary suitable protective clothing is available;
- Ensure that drinking fluids and appropriate rest facilities are available.

Environmental Factors

Cooling fans and good ventilation can be adopted to reduce the temperature of the working environment and also assist with evaporation of sweat to aid the body's thermoregulatory system.

Heat shielding or insulation around sources of high ambient heat can be reviewed or implemented to reduce radiant heat reaching operators.

Air-conditioned, or otherwise cooled, heat refuges (also referred to as *'noise havens'*) should be provided in and around areas of high ambient heat to provide employees with an area in which to take a break from the heat, remove protective clothing, and allow excess body heat to be lost.

Safe Systems of Work

Selection

Personnel working in elevated temperatures must be physically capable of coping with the conditions and will need to be selected on the grounds of medical and physical fitness.

Phased Introduction to Heat

Acclimatisation is seen as an unreliable control measure, however, employees should always be phased into hot working environments and learn to modify their work rate and increase fluid intake accordingly.

Supervision, Buddy System and Self-Monitoring

It is important that all those involved in work at elevated temperatures should be aware of the signs and symptoms of heat illnesses so that they can recognise these signs in themselves and others. It should be emphasised that voluntary withdrawal from the heat is an option and not a sign of weakness. Team members should be encouraged to observe colleagues and alert supervisors and others to any apparent problems.

Work should be monitored by a nominated supervisor, who has been trained to appreciate the effects of exposure to elevated temperatures. The use of any Personal Protective Equipment (PPE) needed for the job should also be supervised. The degree of any supervision needed will be determined by the risk of heat stress; i.e. factors such as environmental conditions, work rate and task duration.

No one should work alone in thermally stressful conditions. Workers exposed to these conditions should either work in pairs or groups or be under direct supervision.

Hydration

Provide adequate fluids in the work area. In thermally stressful conditions sweating increases and as much as 1.5 litres of fluid may be lost in an hour. Heat acclimatisation results in higher sweat loss. Workers should be encouraged to drink plenty of water before they begin working (*'preloading'*) and provision must be made for adequate water to be available either during work, or, if this is not practicable, during rest breaks. Salt should not be added to water. Cool drinks (10-15°C) rather

than cold are preferable – the direct cooling effect of drinks is minimal and, if a drink is too cold, it may cause local vasoconstriction of blood vessels in the stomach resulting in a slower rate of absorption.

Flavoured drinks are acceptable if preferred by the individual, but carbonated and alcoholic drinks should be avoided. Individuals should also be discouraged from drinking copious quantities too rapidly – 250ml every 15 minutes is an advisable quantity. It is not necessary to provide saline drinks or salt tablets – dietary salt is normally adequate to maintain body salt, however, workers who are on a salt-controlled diet for medical reasons should be identified through assessment.

After exposure to elevated temperatures, it is important that workers are not suddenly exposed to the shock of cold environments: they should remain on the shop floor or go to a refuge maintained at a warm temperature (approximately 20°C), rather than enter a very cold room or the open air in cold weather.

They should also be encouraged to continue drinking fluids following their exposure – thirst is not a reliable indication of hydration.

Personal Protective Equipment

Evaporation of sweat is a key element in the body's thermoregulatory system and reduces the risk of heat-related illness. Clothing can disrupt this process – especially with multi-layered or impermeable fabric. Ideally, clothing should be of a lightweight construction, with open-weave fabric, to allow for reasonable air and vapour permeability. This air exchange can be improved through the use of two-piece, e.g. shirt and trousers, rather than one-piece clothing.

It should be noted that additional PPE, such as Ice/Cooling Vests and RPE, can also significantly increase the metabolic load of an individual, in turn increasing potential for heat stress.

Metal fastenings should be used with care, especially if in contact with bare skin, as they are efficient conductors of heat and can cause discomfort or burns if exposed to temperatures above 45°C.

First Aid and Emergency Procedures

Arrangements must be made for provision of first aid, with first-aiders specifically trained to recognise and manage heat illnesses until the arrival of the emergency services or occupational health professional.

There should be a clear emergency procedure in place to deal with any serious injury or illness from heat exposure should it arise. Clinical studies report individuals 'pushing' themselves and then collapsing and all staff should be made aware of this possibility. In serious cases, where thermoregulation has failed, core body temperature will continue to rise despite withdrawal from the high temperature environment, removal of clothing and so on.

A system should be in place to remove any affected worker from the hot area to a suitable cool location where prompt remedial action can be taken. Evacuation from the workplace should be considered – although a conscious and able casualty may have no difficulty with this, the practicality of evacuating an unconscious casualty from

the working area should be considered and a plan of action devised.

Remedial measures should be in place for both those experiencing minor symptoms, and those in a state of collapse where usual first aid priorities of airways, breathing and circulation should be adopted. In such circumstances, cooling the casualty is important – clinical experience shows that complications do occur if casualties are not treated within 15 minutes of collapse and their temperature is not below 38°C within one hour of starting treatment.

For the conscious casualty who can be cooled and is able to take water, hospitalisation is not considered necessary – provided that there is no impairment of consciousness and no evidence of complications, and provided that core temperature has fallen back below 38°C within one hour after the start of treatment. This is a clinical decision that first-aiders are unable to make - such a diagnosis should only be made by a qualified occupational health professional or the emergency services – in all other cases the casualty should be referred to hospital.

Hospitalisation will be required for more serious cases where circulatory collapse may have occurred.

Safe Culture

As well as implementing suitable control measures, employees need to present themselves for work in good health and a safe culture should be encouraged in the workplace. Employees should be encouraged to:

- Maintain a healthy diet and weight;
- Ensure good quality rest prior to attending work;
- Eat prior to work, as this aids hydration. Bread, cereal bars, bananas, yoghurts, beans and fruitcake are all recommended;
- Keep alcohol intake to a minimum, or at least within national guidelines, and avoid any alcohol 8-12 hours before a shift;
- Avoid strenuous exercise immediately before a shift;
- Avoid excessive caffeine before and during a shift, i.e. 1-2 hours before starting and throughout the shift consumption should be restricted to no more than 4 cups of tea or coffee. Those regularly working in thermally stressful conditions should be encouraged to avoid excessive caffeine consumption during the working week;
- Increase fluid intake prior to a shift by drinking non-caffeine based drinks; it should be noted that urine darkness indicates the level of hydration;
- Inform the occupational health department if suffering from any medical conditions or taking medication.
- Become involved in the development and implementation of positive behavioural and cultural change activities;

Critical behaviours to be adopted at work include:

- Pacing work – frequent, short breaks give more benefit than occasional long breaks;
- Regular drinking to maintain an adequate hydration level. An intake of 250ml every 15 minutes is recommended;
- Avoid drinks containing caffeine or carbonated drinks; caffeine is a diuretic and encourages fluid loss, whilst carbonated drinks give a false sense of ‘fullness’;
- Monitoring hydration levels; this can be simply accomplished by observing the colour of urine – darker urine indicates dehydration. Urine colour

Example of an awareness raising initiative, courtesy of Pilkington NSG Flat Glass Business

charts are available and their use encouraged;

- Regular food intake; small intakes of food throughout the shift aid hydration;
- Surveillance – self, team and supervisor to check compliance with behaviours and identify any early symptoms of potential heat illness.

MEDICAL ASSESSMENT, SELECTION AND HEALTH SURVEILLANCE

Where a significant risk is identified, a medical assessment programme must be put into place to ensure an employee's suitability for high-temperature work. This assessment should take place under the supervision of a competent medical practitioner, who in most instances can travel to the glass manufacturing factory. The practitioner should be provided with details of the employee's duties, the potential for exposure to high temperature environments and details of any PPE required.

Pre-employment assessments should identify individuals with permanent or long-standing medical conditions that could render them unsuited to physical work in hot areas. This health screening should be carried out by a competent medical practitioner.

Factors to be considered include:

- Pre-existing medical conditions, e.g. diabetes;
- Use of prescription or non-prescription drugs which affect thermo-regulation;
- Physical fitness;
- Cardiovascular disease;
- Conditions increasing heat production, e.g. thyrotoxicosis;
- Obesity (overweight people have an increased risk of suffering heat stress symptoms);
- Age vs experience (ability to cope with heat stress decreases with age, however experienced operators tend to better understand the need to reduce work rate – younger, inexperienced, workers can also carry increased risk);
- Previous heat illness, demonstrating a personal susceptibility;
- Chronic skin disorders, which can impair temperature regulation;
- Alcohol consumption and abuse, with increased risk of dehydration.
- Day-to-day health of the individual;

It should be noted that an employee may be reluctant to report a problem that excludes them from work – especially if sick pay is limited. The importance of reporting for their own safety, as well as that of their colleagues, must be emphasised through appropriate information and training and a culture of openness encouraged.

A programme of regular medical assessments at an appropriate frequency should be put in place to ensure that workers continue to be fit to undertake this work. The frequency and nature of the assessments should be determined by the supervising practitioner. This is because initial assessment will indicate any inherent degree of risk in the employee.

As a guide the practitioner supervising the medical assessment should have the necessary competence to do so. The Faculty of Occupational Medicine (FOM) define an accredited specialist in their January 2010 publication, *'Occupational Health Service – Standards for Accreditation'*, as follows:

> *An accredited specialist in occupational medicine is a doctor whose specialty is recorded as occupational medicine in the General Medical Council's list of registered medical practitioners. He/she is a doctor who has completed specialist training in occupational medicine approved by the Postgraduate Medical Education and Training Board (PMETB) or its predecessor the Specialist Training Authority (STA) or an appropriate competent authority in other Member States of the European Economic Area. Others will have been found eligible by the PMETB or the STA following an assessment of the specialist training undertaken and/or the specialist qualifications awarded elsewhere.*

The practitioner should have had enough experience in evaluation of fitness to work in high temperatures and to have had first-hand knowledge and experience of the

conditions under which the workers will operate. Some practitioners may need to be given the opportunity to familiarise themselves with the tasks performed in the factory environment. It is not necessary for this practitioner to carry out the detailed medical examination (which could be done by another practitioner or nurse) but it is necessary for him or her to have established the assessment regime and to be responsible for decisions in each case on fitness to work. Bodies such as FOM, COPHA and the Employment Medical Advisory Service (EMAS) may be able to help you find a competent practitioner. Contact details are included in the *'References and Further Information'* section of this guidance.

INFORMATION, INSTRUCTION AND TRAINING

Any system involving self-assessment or reporting relies on accurate and honest reporting – so it is essential that employees are suitably informed not only about the hazards of heat and the symptoms of heat illness, but how personal susceptibility may vary and factors that can affect this, such as illness or prescription medication.

At the initial medical assessment, workers should be given enough information to recognise their own symptoms and those of others. It should be made clear to them that any such symptoms should be immediately reported and that the worker should not resume work until cleared to do so by the supervising practitioner. Such reports should be fed back into the risk assessment and automatically trigger re-evaluation of the assessment. Remember that heat-induced illness is a defined major injury which should be reported in accordance with the *Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995*.

Instruction should include:

- The risks of working in the heat – physical and physiological;
- Symptoms of heat illnesses and how to identify these in themselves and others;
- The potential effects on reasoning and decision making;
- Factors that may increase susceptibility, including medication, physical fitness, illness, etc;
- The risk control measures before working, such as reporting illness, fluid intake;
- Control measures and safe systems of work;
- Control measures following hot work, such as fluid replacement and cooling;
- Avoiding other hazards if affected by the heat, e.g. driving;

REFERENCES AND FURTHER INFORMATION

Legislation

- The Health and Safety at Work Act 1974;
- The Management of Health and Safety at Work Regulations 1999;
- The Workplace (Health, Safety and Welfare) Regulations 1992;
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR);
- The Health and Safety (First Aid) Regulations 1981;
- The Personal Protective Equipment at Work Regulations 1992 (as amended).

References and Further Information

- British Standards Institution BS EN ISO 27243, *'Hot environments – Estimation of heat stress on a working man, based on the WBGT – Index (Wet Bulb Globe Temperature)'*, London: BSI, 1994
- British Standards Institution BS EN ISO 12894, *'Ergonomics of the thermal environment. Medical supervision of individuals exposed to extreme hot or cold environments'*, London: BSI, 2001
- British Standards Institution BS EN ISO 7933, *'Ergonomics of the thermal environment. Analytical determination and interpretation of heat stress using calculation of the predicted heat strain'*, London: BSI, 2004
- British Standards Institution BS EN ISO 9886, *'Evaluation of thermal strain by Physiological Measurements'*, London: BSI, 2004
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- Mines07, *'Prevention of heat illness in mines'*, Health and Safety Executive, 2006
- GEIS 1, *'Heat stress in the workplace. What you need to know as an employer'* http://www.hse.gov.uk/pubns/geis1.pdf
- HSE Guidance on Temperatures: http://www.hse.gov.uk/temperature
- HSE Guidance for Wet Bulb Globe Temperature: http://www.hse.gov.uk/temperature/information/heatstress/wetbulb.htm
- Heat Stress Index (HSI – Belding and Hatch, 1955)
- BOHS Technical Guidance Note 12 – The Thermal Environment (second edition) http://www.bohs.org/uploadedFiles/Library/Publications/TG12%281%29.pdf and addendum: http://www.bohs.org/uploadedFiles/Library/Publications/04_TG12_Addendum_to_2nd_Edition.pdf
- Faculty of Occupational Medicine, *'Occupational Health Service – Standards for Accreditation'*, http://www.facoccmed.ac.uk/library/docs/standardsjan2010.pdf, January 2010

Useful Tools Available

- HSE Workplace Temperature Risk Assessment http://www.hse.gov.uk/temperature/thermal/fivesteps.htm
- HSE Measuring Thermal Comfort Checklist http://www.hse.gov.uk/temperature/thermal/measuring.htm
- HSE Heat Stress Risk Assessment http://www.hse.gov.uk/temperature/information/heatstress/riskassessment.htm

Contact Details

British Glass (BG)
Tel: +44 (0) 114 290 1850
Email: info@britglass.co.uk
Web: www.britglass.co.uk

British Occupational Hygiene Society (BOHS)
Tel: +44 (0) 1332 298101
Email: admin@bohs.org
Web: www.bohs.org

Commercial Occupational Health Providers Association (COPHA)
Tel: +44 (0) 1933 232 373
Email: info@cohpa.co.uk
Web: www.cohpa.co.uk

Employment Medical Advisory Service (EMAS)
The HSE provides details of local EMAS offices:
Web: www.hse.gov.uk/forms/health/emasoffices.htm

Faculty of Occupational Medicine (FOM)
Tel: +44 (0) 20 7242 8698
Web: www.facoccmed.ac.uk

General Medical Council (GMC)
Tel: +44 (0) 161 923 6602
Email: gmc@gmc-uk.org
Web: www.gmc-uk.org

Health and Safety Executive (HSE)
Tel: +44 (0) 845 345 0055
Web: www.hse.gov.uk

Institute of Occupational Medicine Ltd (IOM)
Tel: +44 (0) 131 449 8000
Email: info@iom-world.org
Web: www.iom-world.org

Tel: +44 (0) 114 290 1850
Fax: +44 (0) 114 290 1851
E-mail: info@britglass.co.uk
9 Churchill Way | Sheffield S35 2PY

www.britglass.org.uk