COSSH SUBSTANCES & CHEMICALS POLICY

Policy Statement:

All Employees: This policy applies to all persons working for or on our behalf of the McSence Group of Companies which includes the subsidiary companies - *McSence Communication Ltd, McSence Ltd, McSence Services Ltd & McSence Workspace Ltd* in any capacity including but not limited to:

- All employees at all levels, prospective employees, agency workers, seconded workers, temporary workers, contractors/sub-contractors, clients, agents, external consultants, volunteers, members of the public, group's supply chain, third-party representatives and/or business partners who will be referred to in our Group policies as "all employees".

The Workplace: This policy applies to all persons working for or on our behalf of the McSence Group of Companies in any capacity at the workplace(s) as defined below which includes but not limited to:

- McSence Premises, Offices, Units, Business Park, Client's Premises, External Meeting Places, Customers' Homes, Gardens, Sheltered Housing, Whilst On-Call, On-Duty, Emergency Cover, Working from Home including On-Line Meetings, Whilst Driving in Company Time, Working Public Areas (café's, trains, coffee shops, buses etc) and will be referred to throughout this policy as "the workplace".

Hazardous Substances, Chemicals, Including Carcinogens Procedures

This topic is an area where access to reliable information is critical. Be sure to use only authoritative information before making decisions that affect the health and safety of others.

Don't forget any precautions you should take to protect the environment (eg, drains, watercourses, land, etc), although it is outside the scope of 'Health and safety consultant'.

What makes a substance hazardous?

A substance is hazardous when it is able to enter the body and reach an organ where it can cause harm by its toxic, corrosive, inflammatory or carcinogenic properties. This can be by:

- skin contact; the substance may penetrate through the skin into the bloodstream or directly effect the skin itself
- inhalation; breathing in the substance as a gas, vapour or dust may lead to absorption into the body via the bronchial system or to direct action on the lung itself
- ingestion; this can lead to direct absorption into the body through the gut and into the rest of the body via the bloodstream.

Some infectious agents (such as HIV) can enter the body via the mucous membranes - the nose, the eyes and the inside of the mouth, for example.

In addition to human health impacts, the impact on the environment is now considered when categorising the hazard that a substance poses.

Chemical data sheets The 'Chemicals (hazard information and packaging) regulations 2002' (CHIP) require suppliers to identify the hazards of the chemicals they supply. If a chemical is dangerous, suppliers must provide information about the hazards the chemical presents to humans and the environment.

In addition to the label, suppliers must provide a safety data sheet. Safety data sheets provide detailed information that is useful when making a risk assessment, as required under COSHH.

Many companies make the mistake of believing that the safety data sheet is an assessment and that by obtaining and filing the sheets they are complying with the law. This is not the case. Obtaining the data sheets is one of many steps involved in a COSHH assessment.

Are chemical data sheets provided with all hazardous substances? The short answer is 'no'.

CHIP does not cover pesticides, medicines or cosmetics and so it follows that safety data sheets are not necessarily available to users of these substances. Nor does CHIP cover substances that may be hazardous through infection.

In addition, retailers do not have to supply safety data sheets to the general public. However if a hazardous substance is purchased for use at work, the retailer must provide one to the purchaser.

What information does a chemical data sheet include?
A chemical data sheet should include the following information:

- identification of the substance/preparation and company
- composition/ information on ingredients
- hazards identification
- first-aid measures
- fire-fighting measures
- accidental-release measures
- handling and storage
- exposure controls/personal protection
- physical and chemical properties
- stability and reactivity
- toxicological information
- disposal considerations
- transport information
- regulatory information
- other information (training advice, recommended uses and restrictions, etc).

Hazard categories of dangerous substances: Dangerous substances are classified into their hazard categories (oxidising, corrosive, etc) to help users to rapidly identify the danger; these are indicated by the use of standard symbols as set out in Schedule 2 to the 'Chemicals (hazard information and packaging) regulations'.

There are two types of symbols, one set aimed at end-users, and another set aimed at people who might be affected by dangerous goods in transit in the event of an accident or spillage.

This section concerns the categories designed to help end-users of dangerous substances, and which are a requirement of the CHIP regulations. As well as a symbol, each hazard has a set of standard safety and risk phrases to help users to understand the precautions required. Each substance must be labeled with these symbols and phrases.

Transport of dangerous substances and goods: In addition to all of the above, there are nine internationally-recognised hazard classifications for materials being transported by road, rail, inland waterway, sea or air. Many of the symbols are the same as those required by the CHIP regulations, while others are confusingly different. This is a very specialised subject and advice should be sought from a dangerous-goods safety adviser.

Categories of hazardous chemicals
Explosive (includes fireworks): Examples include picric acid, organic peroxides, alkyl perchlorates, metal fulminates, nitroalkanes, 'black powder', and all fireworks.

- a substance or preparation which creates the risk of an explosion by shock, friction, fire or other sources of ignition (must be more sensitive than dinitrobenzene)
- a pyrotechnic substance designed to produce heat, light, sound, gas or smoke or a combination of such effects through non-detonating self-sustained exothermic chemical reactions
- an explosive or pyrotechnic substance or preparation contained in objects.

Oxidising: Any substance with oxidising properties which may start a fire in other materials or stimulate the combustion of other materials and, therefore, increase the violence of a fire.

'Oxidising property' means a property of substances which, although not necessarily combustible, may readily liberate oxygen or be the cause of an oxidation process and which, as a result, may start a fire in other materials or promote the combustion of other materials. Examples, hydrogen peroxide, organic and inorganic (especially benzoyl) peroxides, sodium chlorate (when mixed with a combustible substance), ammonium chlorates.

Extremely flammable (includes both gases and liquids)

- liquids which have a flash point lower than 0°C and the boiling point (or, in the case of a boiling range, the initial boiling point) of which at normal atmospheric pressure is less than, or equal to, 35°C; examples include diethyl ether
- gases which are flammable in contact with air at ambient temperature and pressure, whether or not kept in the gaseous or liquid state under pressure; examples include acetylene, butane
- any flammable liquid substances and preparations maintained at a temperature above their boiling point.

Highly flammable

- liquid having a flash point lower than 21°C and which are not extremely flammable; examples include ethyl acetate, isopropyl alcohol
- gaseous and flammable in air at normal pressure
- substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any input of energy; examples include sodium metal, phosphorus
- substances which have a flash point lower than 55°C and which remain liquid under pressure and where processing conditions such as high pressure or high temperature may create major-accident hazards.

Flammable: Substances which support combustion and have a flash point equal to or greater than 21°C and less than or equal to 55°C. Examples include acetic acid, turpentine, xylene.

Very toxic: Substances which cause serious ill-health, even death at very low doses of less than 25mg/kg bodyweight (of rats). Examples include cyanides, ozone, thallium compounds.

Toxic: A large class of substances which cause serious ill-health and possibly death at low doses of between 25-200mg/kg bodyweight (of rats). Examples include sulphur dioxide, pyridine, ammonia, carbon monoxide.

Harmful: A large class of substances that cause serious ill-health or irreversible effects, but may not cause death at doses to which workers could be exposed without some precautions. Examples include methanol, toluene.

Corrosive: Substance, which causes serious damage instantaneously or within a very short period when in contact with the eyes or skin. Skin damage may lead to permanent scarring, while eye damage may be irreversible and cause blindness. Fumes or mists may damage the respiratory tract, nose, lungs, etc. Examples include concentrated sulphuric acid, concentrated sodium hydroxide, hydrofluoric acid, phenols.

Irritant: Substance that causes inflammation of the skin, eyes, mucous membranes or respiratory system, without always destroying tissues. The effect may cause body fluid to collect at the points of irritation.

At lower concentration levels, the irritant may cause skin and eye itching, leading to further damage from rubbing or scratching to reduce the itching and ultimately skin rashes and eye soreness.

Irritation of the mucous membranes and the bronchial system may cause sneezing, coughing, restricted breathing and wheezing.

Examples include acetaldehyde, creosote, dishwasher detergent.

Sensitisers, allergens: Substance which causes irritation of the body, such as a skin or lung irritant; may also cause the bodies' immune system to produce antibodies to fight the substance.

Repeated exposure will cause the body to react by producing large quantities of antibodies, which then of themselves become harmful to the body. The worker then becomes allergic to the substance, often at levels much below the level at which it would be regarded as toxic in one initial dose. The symptoms may include asthma or dermatitis.

Examples include welding fume, isocyanates, rosin in solder flux, latex and epoxy resins.

Carcinogens: Substances that induce a cancer, not necessarily in the tissue or organ first exposed. The period between exposure and onset of disease can be very long (~years).

There are three categories of carcinogens:

- Types 1 and 2 are labelled 'toxic' and are human carcinogens. Examples include benzene, chromium (hexavalent) compounds, asbestos, benzidine, coal tar and soot, vinyl chloride, aflatoxin (Type 1), and beryllium compounds, styrene oxide, ethylene dibromide, sodium dichromate (Type 2)
- Type 3 carcinogens are labelled 'harmful'. Production of cancers has been shown in animals, but not humans. Examples include trichloroethylene ('trike'), heavy fuel oil, potassium bromate, hydrazine.

Mutagen: A substance, which has the capability of modifying the genetic make-up of cells without destroying them. They may be labelled 'toxic' or 'harmful' according to the degree of risk.

It is believed that one form of mutagenic change relevant to occupational health is the conversion of healthy cells to cancer cells. Another possibility is mutagenic change of cells within the reproduction systems of both women or men workers giving rise to permanent change and interference with the person's reproduction system (leading to sterility, miscarriages, stillbirth, birth abnormalities and permanent genetic abnormalities in children).

Examples include nitrobenzene, acrylamide, carbon disulphide and vanadium pentoxide are suspect mutagens.

Toxic to reproduction: Substances ('teratogens') which cause damage, often serious, to the foetus of a pregnant worker such that the body is aborted, still born, small or malformed. They may be labelled 'toxic' or 'harmful' according to the degree of risk.

A teratogen may cause serious damage to the unborn child without having any noticeable adverse effect on the mother exposed to the substance during her work activity.

Examples include carbon monoxide, ethylene glycol monoethyl ether, various lead compounds, ethylene oxide.

Biological hazards: Micro-organisms which on entering the body may give rise to illness, or in some cases death. They include pathogenic viruses and bacteria, moulds, fungi and parasites. Exposure usually via natural specimens, environmental contaminants, animals, birds or other humans.

Biological hazards are categorised according to the degree of hazard, but (when lawfully packaged) they are all tagged with the same label.

Examples include hepatitis B virus, salmonella, leptospira, anthrax, soil samples, faeces, blood and unfit food.

Substances causing harm to the environment: Substances toxic to flora and fauna, for example harming trees, plants, animals, birds, fish and/or insects (or smaller environmental organisms upon which they depend). Also known as eco-toxins.

Examples include copper and zinc salts, polychlorinated biphenyls, certain pesticides.

Toxicity of substances: The term 'toxicity' is divided into a number of categories with very different effects - these are explained in this section.

Toxic: Used generally to mean harmful to human health on entering the body, normally by inhalation, ingestion or skin absorption. Chemicals are more or less toxic depending on the dose taken into the body, by which route of entry, and over what time period.

Acute toxicity: The characteristic of a substance which, on entry into the body, causes adverse effects to health on a short time scale, from seconds to minutes or a few hours. For example, sodium cyanide and chlorine are acutely toxic and cause serious effects within seconds.

Chronic toxicity: The characteristic of a substance which, on entry into the body in a single low dose, does not cause immediate effects, but which begins to cause ill health over time if the doses are repeated.

Ill-health effects may become obvious over days, months, or years, often involving slow insidious decline in health over time. These effects may be irreversible. For example, lead, mercury, or chlorinated solvents may take months or years of exposure to cause a noticeable effect on health.

Delayed toxicity: The characteristic of a substance which, on single or repeated doses over a period of time, does not obviously cause acute or chronic ill health, but which eventually causes ill-health effects after a considerable delay period of months or years during which no ill-health symptoms are observed. These effects may well be irreversible. Examples include benzidene and 2-naphthylamine.

Target organ toxin: A substance giving rise to harm to one body organ in particular. Examples include vinyl chloride and its association with liver cancer.

Systemic toxin: A substance that harms several organs of the body, possibly to many or all parts of the body; for example, phenol is corrosive to the skin and may cause damage to the liver, kidneys and heart if ingested.

Narcotic: A substance inducing drowsiness, sleep, stupor or insensibility. Examples include most workplace volatile organic solvents, most notably trichloroethylene which begins to cause light-headedness at a concentration of around 400ppm in air; some types of wood dust have narcotic properties.

Neurotoxin: A toxic substance giving rise to harm to the nervous system, including the brain. Examples include mercury and carbon disulphide.

Carcinogens: Cancer is a disorder of the body tissue cells, which divide and multiply without need. The new growths are called tumours and may be either benign or malignant. A benign tumour remains localised and (generally speaking) has little impact on health, whereas malignant tumours can invade other parts of the body to form new tumours, often resulting in death.

Substances that are linked with tumour formation are termed 'carcinogens'. A list of these substances is shown in schedule one of the COSHH Regulations, and a list can be found in 'EH40: occupational exposure limits' along with their 'maximum exposure limits' (MELs).

If a carcinogen is supplied as a substance, it must comply with CHIP and carry the appropriate R-Phrase; eg, R45: 'may cause cancer'. Trichloroethylene ('trike') has recently been re-classified in this way. However, a substance may not be so readily identified if its carcinogenic properties are a by-product - as with hardwood dusts, diesel exhaust gases, etc.

The effects of a carcinogen can take many decades before the symptoms are realised. In the case of asbestos, the average period is 33 years. It is also difficult to establish causal links between a substance and cancer, as the lifestyle and habits of the individual have varying effects on the development and progress of the disease; fitness, diet, weight, etc. Smoking and drinking (alcohol) are known to have synergistic effects with carcinogens, thus multiplying the risk.

Typical industrial cancers: Some cancers are closely associated with industry types. Typical examples are shown below:

Industry	*Source*	*Substance*	*Target organ*

Rubber	Antioxidants	Aminobiphenyl	Bladder and marrow
Woodworking	Sanding/cutting	Hardwood dusts	Nose and throat
	MDF dusts	Formaldehyde	Lymphatic
	Preservatives	Creosotes	Skin
Food	Nuts and grains	Aflatoxins	Liver
Motor trade	Fuel systems	Benzene	Blood
	Garage	Used engine oils	Skin
		Diesel exhaust fumes	Bladder and lung
		Mineral oils	Testicles and skin
Metalworking	De-greasing	Trichloroethylene	
	Cutting/scrapping		Dioxins
	Welding	Cadmium	Prostrate and kidney
	Chrome plating	Chromium compounds	Lung
	Stainless welding	Chromium compounds	Lung
	Metalworking fluids		
Painting and dyeing		Paints	Pigments, binders, solvents Lung
	Dyes	Benzidine-based dyes	Bladder
	Fumigants	Ethylene oxide	Lymphatic
		Propylene oxide	Skin and liver

Controlling exposure to carcinogens: There are separate sections within COSHH for controlling carcinogens and a list of prohibitions on the use of certain carcinogenic substances. As this is a specialist subject, and the risks to health are high, guidance and assistance on dealing with carcinogens should be sought from a chemist preferably trained as an occupational hygienist. However, by way of a general guide the following provides an overview of the guidance given in COSHH for controlling carcinogens.

Prohibited substances

A large number of hazardous substances are prohibited for use for certain purposes - these are listed in detail in Schedule 2 of COSHH. It should be noted many of these are commonplace substances, such as sand, oil, benzene, chloroform and trichloroethane. The point is that these substances are prohibited for use in specific, dangerous circumstances.

Other substances prohibited for import into the UK include:

- 2-napthylamine
- benzidine
- 4-aminodiphenyl
- 4-nitrodiphenyl

The prohibition also applies to their salts and any preparations containing these compounds in more than trace amounts (0.1% by mass). There is also a ban on import or supply of benzene unless it is a constituent of motor fuel or waste, and on matches made with white phosphorus

Assessment of carcinogenicity

An assessment of the nature and extent of the risks must be performed and should include:

- identification of hazards, routes of entry, extent of exposure, workers who may be exposed (particularly pregnant women), etc
- whether substitution is reasonably practicable
- control measures to be applied to prevent or reduce exposure
- operating and maintenance instructions and procedures to ensure exposure is minimised
- precautions under non-routine conditions; for example, maintenance and emergencies
- use of PPE
- monitoring procedures
- health-surveillance procedures
- arrangements for consulting the workforce; including reporting defects, essential information, training requirements, etc.

Prevention and control of exposure

Prevention is provided by elimination of the substance, or exposure to it, by careful design of processes and/or plant. The health-and-safety effects of any substitution/replacement substance should receive careful consideration.

Control measures must ensure that 'occupational exposure limits' (OELs) are kept to an absolute minimum. This can be achieved for example by:

- engineering controls: total enclosure, partial enclosure with extract/ventilation.
- managerial controls: by limiting access of persons, time exposed and quantity used.
- welfare facilities: prohibition of smoking, eating and drinking near to carcinogens. Changing work clothing after each shift, washing and laundering facilities
- personal protective equipment: PPE should only be a last resort where engineering controls do not provide sufficient protection
- monitoring to ensure adequacy of controls: air monitoring (personal and static), biological monitoring (blood, urine and breath)
- health surveillance: regular medical examinations by a doctor or health nurse, and self examination
- information, instruction, training and consultation with the users to report the results of monitoring
- record keeping of: methods of handling, exposure of operators, control methods, health-related matters. Health records for an individual must be kept for 40 years from the last date of entry
- inspection, maintenance and testing records, which must be kept for a minimum of five years.

Dangerous-goods safety advisers: The 'Transport of dangerous goods (safety advisers) regulations 1999' require employers to appoint a dangerous-goods safety adviser (DGA) to ensure that transport of dangerous goods by road, railway and inland waterways is carried out safely. The ultimate aim is to protect the public, workers and the environment by minimising the risk of fire, explosion and spillage of toxic or otherwise harmful materials.

The adviser's main role is the provision of advice to the employer on environmental, and health-and-safety issues regarding the transport of dangerous goods. The main task is to monitor practices and procedures in relation to the transport of dangerous goods and to report to the employer on any accident which affects the health or safety of any person, or causes damage to the environment or property, and which occurs during the loading, carriage or unloading of dangerous goods under the responsibility of the employer. An annual report must be prepared on the organisation's transport of dangerous goods, setting out the conclusions of the adviser's monitoring activity, with a view to improving compliance. The reports must be kept for five years and be available to inspectors on request.

The DGA requirement meshes with security requirements, and the extensive legal requirements to classify, package and label dangerous goods appropriately; but that subject is outside the scope of the DGA service.

Do all employers need a dangerous-goods safety adviser?

The regulation applies to employers who:

- consign dangerous goods by road, railway or inland waterway
- operate road transport vehicles carrying dangerous goods
- load or unload dangerous goods, including goods when in transit.

What are 'dangerous goods'?
These roughly coincide with a commonsense view of 'dangerous' and include:

- radioactive materials
- explosives
- chemicals and preparations that are specifically listed in the HSE's 'Approved carriage list'
- goods not falling into the categories above, but shown to be hazardous after undergoing checks set out in the HSE's 'Approved requirements and test methods for the classification and packaging of dangerous goods for carriage'.

Dangerous goods also include special waste, kerosene, petrol, diesel fuel, flammable solvents, LPG, pesticides, safety matches, compressed nitrogen, phthalic anhydride, polyester resins, infectious materials, refrigerant gas, and many thousands of other chemicals and preparations.

What are the exemptions?

- carriage between premises on the same site
- live animals
- road construction (to a limited extent)
- agriculture and forestry (also to a limited extent)
- Her Majesty's Forces.
- small quantities; eg, fewer than 500 smoke detectors, five tritium luminous devices per vehicle.
- carriage of dangerous goods due to an emergency, with the intention of saving human life or protecting the environment.

Where can I find a dangerous-goods safety adviser? Employers should appoint a person as a dangerous-goods safety adviser who has a suitable training certificate appropriate to the mode of transport used by them, and to all of the dangerous goods or one or more of the groups of goods specified and transported by them.

The vocational training certificate is issued by the Scottish Qualifications Authority on behalf of Department for Transport (DoT), and is valid throughout all the member states of the European Union. It is valid for five years. During the final year, safety advisers may undergo 'refresher training' and successfully complete a further examination to revalidate the certificate for a further five years.

Security of dangerous goods: The 'Carriage of dangerous goods by road regulations 1996' (as amended) require appropriate parking and supervision of vehicles carrying dangerous goods. Similar provisions for vehicles carrying explosives or radioactive material are contained in the 'Carriage of explosives by road regulations 1996' and in the 'Radioactive material regulations 1996'. Operators and drivers should be vigilant in ensuring that vehicles and loads are locked and secured at all times, whenever practicable. Under no circumstances should ignition keys be left in unattended vehicles.

Drivers and operators should also be vigilant in looking out for suspicious activity, especially when loading and unloading. This should be reported immediately to the police. They should not place themselves in danger by taking direct action against would-be thieves or terrorists.

Following recent terrorist attacks in the USA, the DoT highlights the continuing need for sensible and proportionate levels of security measures to protect dangerous goods.

Vehicle marking required by legislation must not be removed for security reasons during transport.

Health surveillance and hazardous substances: Health surveillance is a legal requirement under COSHH, in the following circumstances:

- if exposure is linked to an identifiable disease or adverse health effect (such as cancer or sensitisation)
- if it is reasonably likely that the disease or health effect could occur under the work conditions
- if valid techniques for detecting symptoms of the disease or health effect exist.

This means that surveillance will not be necessary when measures, such as local exhaust ventilation are used to control the risk adequately. However, it may still be needed when the risk of disease remains in spite of the use of control measures.

Health-surveillance techniques and records: Where a risk assessment indicates a significant risk of occupational asthma, a high-level of health surveillance is required. This involves the use of questionnaires and testing of lung function being carried out under the supervision of an experienced health professional.

Lower levels of surveillance are appropriate if the risk is small. A responsible person within the company could be trained to use a questionnaire to obtain evidence of adverse health effects. Employees experiencing problems then being referred to a medical practitioner.

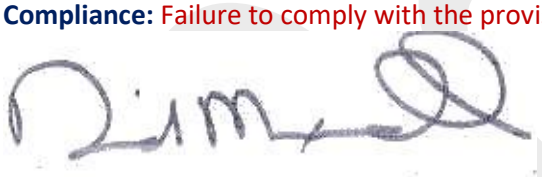
Periodic skin inspections by a trained person would constitute an appropriate level of surveillance for risk of skin diseases. There should also be access for referral to a suitably qualified professional, and health records should be kept for each employee under surveillance.

For carcinogenic effects, where there is a risk of nasal cancer, it is necessary to initiate and maintain a health record, which shows that an employee has been exposed to hardwood dust. The record should list jobs undertaken by that employee over a particular period, and should be capable of being linked to exposure monitoring data.

Where COSHH requires that health surveillance be undertaken, employees under surveillance should be informed of the likely health effects of the timbers they use, and instructed on how to recognise the early symptoms of disease. A responsible person should be nominated, to whom they may report if they begin to develop signs of occupational disease.

Company Intranet – Staff Zone: All the McSence Groups policies, procedures, handbooks are available on-line to all employees on the McSence Group's Staff Zone Intranet via our website Login | McSence

Compliance: Failure to comply with the provisions of this Policy may result in Disciplinary proceedings.



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Policy Amendments & Revisions: *This policy will be reviewed annually and, if necessary, revised in the light of legislative or organisational changes Improvements will be made by learning from experience and the use of an established annual review. Should any amendments, revisions, or updates be made to this policy it is the responsibility of the Company Senior Management Team (SMT) to see that all relevant employees receive notice and training if necessary.*