

Hazard Category	Nature of Hazard	Description	Hazard Level			UoW Topic	
			Low Risk	Medium Risk	High Risk		
HS100. Biological - Bacterial, viral, cells and tissue related	HS101. Human Pathogens	Bacteria, Viruses, Fungi, Prions & Parasites (as listed in Advisory Committee on Dangerous Pathogens (ACDP) guidance) with a potential impact on human health	ACDP Hazard Group 1	ACDP Hazard Group 2	ACDP Hazard Group 3	Biological Safety webpages	
	HS104. Animal Pathogens	Bacteria, Viruses, Fungi & Parasites with a potential impact on animal health: SAPO is an abbreviation for Specified Animal Pathogens Order 2008	Projects NOT requiring SAPO licence (unless they also impact on human health)	Use of SAPO Group 2 agents	Use of SAPO Group 3 agents and above	Biological Safety webpages	
	HS105. Plants and Plant Pathogens	Bacteria, Viruses, Fungi & Parasites with a potential impact on plant health	Plant projects assigned to Containment Level 1	Plant projects assigned to Containment Level 2 (including the use of materials requiring a Plant Health Licence)	Plant projects assigned to Containment Level 3	Biological Safety webpages	
	HS106. Pathogens and Toxins	With the potential for misuse, as listed in the Anti-Terrorism, Crime and Securities Act 2001	X	Toxins not listed on Schedule 5, or listed but falls under an exemption	Schedule 5 listed substances	Biological Safety webpages	
	HS107. Genetic Modification Projects	Potential risk to the environment and people from activities involving genetically modified animals and plants	Assessed as Class 1 Contained Use	Notified to HSE as Class 2 Contained Use	Notified to HSE as Class 3 Contained Use	Biological Safety webpages	
	HS108. Larger Genetically Modified Organisms (GMO's)	Potential risk to the environment and people from activities involving genetically modified animals and plants	GM animals and plants posing no increased risk to human health or the environment	Notifiable contained uses with GM animals or plants that pose an increased risk to human health and/or the environment	Activities with GM animals and plants (whether notifiable or not) that include high risk in other categories	Biological Safety webpages	
	HS109. Clinical Samples Including Human Tissues	Clinical Samples Including Tissues, serum, blood etc. - Impacting on human health (which may or may not be classified under the Human Tissue Act)	Work with screened human samples	Work with un-screened human samples	Work with un-screened human samples where there is risk of highly infectious microorganisms	Biological Safety webpages	
	HS110. Cell Lines	Cell culture developed from a single cell and therefore consisting of cells with a uniform genetic make-up	CL1 - Well characterised or authenticated finite or continuous cell lines of human, primate or animal origin with low risk of endogenous infection with a biological agent and which have been tested for serious biological pathogens	CL2 - Finite or continuous cell lines/strains of human or primate origin not fully characterised or authenticated except where there is high risk of endogenous biological agents e.g. blood borne viruses	Containment level appropriate to agent or potential risk – Cell line with biological agents or cells that have been deliberately infected or primary cells from blood or lymphoid cells of human or simian origin.	Biological Safety webpages	
	HS111. Bio-reactors and Bio Manufacturing Work and Facilities	Apparatus, such as fermentation chambers, for growing organisms such as bacteria or yeast, or for the bioconversion of organic waste	Small scale bio- manufacturing work with non-infectious organisms	Bio-manufacturing work	Large scale bio-manufacturing work with infectious microorganisms	Biological Safety webpages	
	HS112. Allergenic biological materials	With the potential to cause allergies in humans	X	X	Materials that cause allergic reactions via skin contact and airborne routes	Biological Safety webpages	

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HS200. Chemical	HS201. Drug Precursors	Due to their potential for theft and mis-use	Category 3	Category 2	Category 1	Drug Precursor Guidance		UK Government - Precursor-Chemical Licensing						
	HS203. Substances covered by the Controlled Drugs Act	Due to their potential for theft and mis-use		Schedules 2 to 5 substances	Schedule 1 substances	Pharmaceutical Substances		UK Government - Controlled Drugs Licence Fees and Returns						
	HS204. Substances covered by the Chemical Weapons Convention	Due to their potential for theft and mis-use		Schedules 2 and 3 substances	Schedule 1 substances	Chemical Safety Guidance		UK Government - Chemical Weapons Convention Guidance						
	HS205. Substances Hazardous to Health	Chemicals, Biological Agents and Carcinogens which might cause harm to individuals. It does not include lead, asbestos or radioactive materials. Note that since 2015 the R (Risk) and S (Safety) phrases have been replaced by H (Hazard) and P (Precaution) phrases.	Hazard Group A substances as defined in HSE guidance 'CoSHH Essentials' (Technical basis for CoSHH essentials: Easy steps to control chemicals). Examples include H303, H313, H320, H333 etc. Such substances normally require simple controls following manufacturers information.	Hazard Group B and C substances requiring engineering controls or containment as defined in HSE guidance 'CoSHH Essentials'	Hazard Group D and E substances. Exposure has potential for fatal or irreversible debilitating health effects, including carcinogens. H310, H350, H351, H372, H373 or EUH070. (Hazard Group D and E substances as defined in HSE guidance 'CoSHH Essentials')	Chemical Safety webpages		Control of Substances Hazardous to Health (COSHH) - COSHH (hse.gov.uk)	HSE - COSHH assessment, identifying hazard and assessing risk	HSE COSHH Essentials webpages		Proposed changes to amend the Carcinogens and Mutagens Directive (2004/37/EC)	Directive 2004/37/EC	Information on changes being proposed in the amendment to the Directive
	HS206. Substances Hazardous to Health (Sensitisers) - Inhalation or skin contact	Sensitising by inhalation or skin contact.			Substances or materials with *R42-H317, H334, EUH203, EUH204 or EUH208	Chemical Safety webpages		Examples of skin irritants and sensitisers, together with occupations where they occur	List of substances that can cause occupational asthma	Control of substances that cause occupational asthma				
	HS207. Mutagens and Teratogens - Hazardous to health and can cause hereditary defects	Substances which have known or potential serious health effects. Their use must be subject to strict controls and risk assessment			Substances with *R60-R61, R62-R64 or H340, H341, H360, H361, H362	Chemical Safety webpages		Control of Substances Hazardous to Health (COSHH) - COSHH (hse.gov.uk)						
	HS208. Substances - Poisons, potential for mis-use	Substances which have known or potential serious health effects. Their use must be subject to strict controls and risk assessment			Poisons / highly toxic if inhaled, swallowed or skin contact (H300, H310, H330, EUH201, EUH207, R23, R24, R27, R28)	Chemical Safety webpages		Control of Substances Hazardous to Health (COSHH) - COSHH (hse.gov.uk)	The Poisons Rules 1982 (as amended)					
	HS209. Reactive Substances	Substances which react violently (rapid decomposition) when in contact with incompatible substances, water or air, producing heat, fire, explosion or undesired gases or vapours	Potential for slower changes	Water sensitive materials releasing flammable or toxic gas, or oxidising materials, (*R7, R8, R9, R10, H270, H271, H272)	Air sensitive materials; pyrophoric materials; substances with potential for thermal runaway or rapid volatilisation	Chemistry Handbook Sections, 42-45		Brethericks via library	Control of Substances Hazardous to Health (COSHH) - COSHH (hse.gov.uk)					
	HS210. Substances Hazardous to the Environment	Substances which could cause harm to flora or fauna should they be released to air, ground or water courses, or might cause longer term adverse effects to the environment	Contamination but no lasting harmful effect to air, land or water	Highly toxic, toxic or harmful to air, land or water (*R50-R51, R54-R55, R56, R57, R58, R59, H400, H410, H411, H412, H413)		Emergency Spillage Arrangements		UK Government - Environmental management - detailed information						
	HS211. Nanomaterials	Engineered or naturally occurring materials with at least one external dimension in the size range 1-100 nm (nanometres) with potential health, environment and reactivity hazards		Particles with one or more linear dimension 1nm < d <100nm, bound in an adhesive, liquid, solid or gel	Unbound particles with one or more linear dimension 1nm < d <100nm. Includes those generated by mechanical working of material. Carbon Nano-Tubes (CNTs) and other High Aspect Ratio Nano materials (HARN's) in any form	Nanotechnology webpage		HSE Nanotechnology webpages	UK Nanosafety Group - Working Safely with Nanomaterials in Research and Development (available for download from this webpage)	USHA Nano Safety in Research and Development				
HS212. Explosives and detonable substances	Substances which can be made to explode	Charge required for explosion	Substances which explode when working above STP (STP is defined as a temperature of 273.15 K (0 °C, 32 °F) and an absolute pressure of exactly 10 5 Pa (100 kPa, 1 bar))	Self-detonating / igniting / exploding	Chemical Safety webpages		HSE Fire and explosion webpages							
HS213. Fire risks from Flammable Liquids	Any liquid with a flashpoint of 55°C or below	Flammable - Liquids with a flashpoint greater than or equal to 21°C and less than or equal to 55°C. (*R49, H226)	Highly flammable - Liquids with a flashpoint below 21°C and above 0°C. (*R23, H225)	Extremely Flammable - Liquids with a flash point below 0°C. (*R22, H222/H224)	Chemical Safety webpages	Flammable Liquids	HSE Storage of flammable liquids in process areas, workrooms, laboratories and similar working areas							
HS214. Fire and explosion risks from Gases and Gas Cylinders	Use of fuel gases (such as acetylene and LPG) or Oxygen, or Oxygen enriching gases, whether from bulk supplies or cylinders	Any cylinders	Oxygen enriching gases. H270	Liquefied petroleum gases, Highly Flammable Gases including acetylene	Gas Cylinders		HSE Drum / Cylinder Handling	HSE Acetylene Guidance	BGCA Guidance					
HS215. Health risks from Gases and Gas Cylinders	Toxic gases and oxygen displacing/depleting gases which have a potentially harmful impact on exposed individuals		Toxic gases, oxygen depleting liquids and gases (including Cryogenic gases and liquids)	Highly toxic gases	Gas Cylinders		HSE Drum / Cylinder Handling	BGCA Guidance						

Note that R or Risk Phrases have been struck through as they were replaced by H or Hazard Phrases in 2015.

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HS300. Laser and Radiation	HS301. Ionising Radiation – Sealed Sources	A source containing any radioactive substance whose structure is such as to prevent, under normal conditions of use, any dispersion of radioactive substances into the environment	Security Category 5 sources including exempt sources: low radiation hazard	Radiation hazard requiring source accountability and Security Category 3 and 4	High energy radiation: Security Category 1 (HASS) and 2	Ionising Radiation webpages	HSE Ionising Radiation webpages
	HS303. Ionising Radiation – Open Sources	A source which is not encapsulated or otherwise contained		All others not mentioned in 'High'	High energy beta and gamma emitters e.g. 32P,125I	Ionising Radiation webpages	HSE Ionising Radiation webpages
	HS304. Ionising Radiation – Equipment	X-ray generating equipment			X-ray generators	Ionising Radiation webpages	HSE Ionising Radiation webpages
	HS305. Lasers	From lower powered lasers used in equipment such as laser pointers, scanners, levelling and measuring devices, to higher powered lasers, used for cutting and welding, particle flow analysis, cavitation research, interferometry and sample preparation for mass spectrometry	Class 1, Class 1M, Class 2 lasers	Class 1 laser product, Class 2M and 3R lasers	Class 3B and 4 lasers	Laser webpages	Guidance for Employers on the Control of Artificial Optical Radiation at Work Regulations (AOR) 2010
	HS306. Electromagnetic Radiation - Static Magnetic Fields	Equipment producing large magnetic fields or magnetic resonance, like those used in Magnetic Resonance Imaging		Field strength 0.4 to 2 Tesla	Field strength > 2 Tesla	Static Magnetic Fields	HSE Non-Ionising webpages
	HS307. Electromagnetic Radiation in the frequency range 1Hz to 300GHz	Use of equipment operating within the stated frequency range, with particular attention to induction heaters, dielectric heaters, transmitters (HF, VHF, SHF, UHF, microwave), navigational equipment, and DC electromechanical process equipment, such as that used in electroplating		Non-ionising radiations at levels which exceed recommended exposure limits	Non-ionising radiations at levels which exceed recommended occupational exposure limits, and where individuals with active or passive implants, with body worn medical devices, or pregnant women are present or likely to be present	Non-Ionising webpages	HSE Non-ionising webpages
	HS308. Artificial Optical Radiation	Welding (both arc and oxy-fuel) and plasma cutting, UV fluorescence and sterilisation systems, furnaces, UV curing, blue light and UV therapies, and Intense Pulsed Light sources (IPLs), also includes Risk Group 3 lamp or lamp systems, for example search lights, professional projections systems			Intense artificial light: brief exposure could cause harm to eyes or skin	Optical Radiation webpages	HSE Optical Radiation webpages

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HS400. Physical - Machinery or energy source related hazards	HS401. Mechanical Hazards	Associated with moving parts of work equipment and/or projectiles	Standard work equipment fitted with manufacturers guarding and appropriate certification or CE / UKCA marking	Non-standard work equipment fitted with Fixed or Interlocked guarding. Non-standard work equipment is any equipment which has been built or modified 'in-house'	Non-standard work equipment fitted with Automatic or distance guards, Adjustable guards or Trip devices, or that relies on other control measures	Work Equipment webpages	HSE Work equipment and Machinery webpages		
	HS403. Noise	Situations where people might be exposed to excessive or intrusive noise from equipment for periods of longer than 30 minutes or longer each working day	>80dB(A); Repeated Impact noise >135dB(C)	>85dB(A); Repeated Impact noise >137dB(C)	>87dB(A) (exposure limit); Repeated Impact noise 140dB(C)	Noise	HSE Noise at Work Advice and Guidance webpages		
	HS404. Hand Arm Vibration	Associated with the protracted or repeated use of hand held work equipment	Vibration magnitude of < 2m/s (e.g. standard drill)	Vibration magnitude of 2-4 m/s (e.g. brush cutters)	Vibration magnitude of > 4m/s e.g. petrol powered hand tools (e.g. chainsaws, angle grinders, sanders (random orbital), hammer drills, etc.)	Vibration	HSE Hand-arm Vibration at Work webpages		
	HS405. Whole Body Vibration	Associated with the protracted or repeated operation of mobile plant or larger equipment	Exposure level below action value of 0.5 m/s ² A(8)	Exposure level above action value of 0.5 m/s ² A(8)	Exposure level potentially approaching the limit value of 1.15 m/s ² A(8)	Whole Body Vibration	HSE Whole body Vibration at Work webpages		
	HS406. Electricity	Risk of personal injury from electrical equipment or electrical installations (fixed or temporary)	Work involving only the use of standard (CE / UKCA marked) mains powered equipment inside buildings. Modification, testing or repair of electrical systems or equipment which normally operate at Extra Low Voltage (below 50V ac or 120V dc) where there is the potential to come into contact with live parts	Standard (CE / UKCA marked) mains powered equipment used outdoors. Modification, testing or repair of electrical systems or equipment which normally operates at Low Voltage (between 50V ac and 1000V ac or between 120V dc and 1500V dc (ripple free)) where there is potential to come into contact with live parts	Work on or near any live conductor (other than one suitably covered with insulating material so as to prevent danger). Modification, testing or repair of electrical systems or equipment which might be, or might easily become, live. Work involving High Voltage (over 1000V ac or 1500V dc) where there is potential to come into contact with live parts	Electrical Safety	HSE Electrical Safety at Work webpages		
	HS407. Pressure Systems	Systems operating at greater than 0.5 bar, including vessels, piping, safety accessories and pressure accessories, plus elements attached to pressurised parts such as flanges, nozzles, couplings, etc.	Systems operating at greater than 0.5 bar but no more than 2 bar over atmospheric (1013 mbar) which is properly installed and maintained and used for its intended purpose and should not endanger persons or property	Installed or mobile system, plus safety devices, covered under a Written Scheme of Examination. Research project systems, not covered under a Written Scheme of Examination, but greater than 0.5 over atmospheric, that have been designed and constructed to 'sound engineering practice' (SEP) such that there are safety features built into the design (such as pressure reducing valves, safety valves, pressure relief and indicating devices) which should prevent an unintentional release of stored energy	Installed or mobile systems operating at or above 200bar. Any system involving steam stored at any pressure. Research project systems at 100 bar or above. Assemblies which have residual hazards where it is necessary to take appropriate special measures to reduce risks (e.g. the need for human intervention to prevent a hazard occurring)	Pressure Systems	HSE Pressure Systems webpages		
	HS408. Vacuum	Systems operating below atmospheric pressure, including pumps, piping, safety accessories and pressure accessories	Any custom or 'in-house' built Low Vacuum systems. Any standard High Vacuum (HV) system	Any custom or 'in-house' built High Vacuum (HV) system. Any standard Ultra High Vacuum (UHV) system	Any vacuum used on volatile liquids and solvents, cold traps. Use with Liquid Nitrogen. Any custom or 'in-house' built Ultra High Vacuum (UHV) system	Work Equipment webpages	Provision and Use of Work Equipment Regulations, 1998 (PUWER)		
	HS409. Extreme Temperature - High or low temperatures	Use of equipment and materials which have the potential to pose a risk of injury to individuals through direct contact, or work in environments which are normally maintained outside of typical workplace temperature ranges	Use of point sources of heat, which could give rise to injury	Superheated liquids or super-cooled liquids. Use of high temperature furnaces (larger than bench top) or work in dedicated cold or dry rooms (where person access is required)		Risk Assessment	HSE Temperature webpages		
	HS410. Hydraulic Systems (under pressure)	Equipment reliant on liquid under pressure to provide mechanical assistance to a task or operation of a machine	Hydraulic system which forms part of a machine which is properly installed and maintained and used for its intended purpose and as such should not endanger persons or property	Hydraulic system assembly which has been designed and constructed to meet industry-recognised safety standards, (such as ISO 4413:2010) and as such have features built into the design (such as check valves, pressure relief and control valves) which should prevent an unintentional release of stored energy	Assemblies which have residual hazards where it is necessary to take appropriate special measures to reduce risks (such as where there is the need for human intervention to prevent a hazard occurring) or where there are additional risks (like an assembly that uses a fluid with a low flashpoint which is used in proximity to hot surfaces)	Work Equipment webpages	HSE Provision and Use of Work Equipment Regulations 1998 (PUWER) webpages	HSE - Safe Use of Power Presses	HSE Research Report relating to hydraulic injection injury
	HS411. Lifting Operations	All mechanical handling and lifting operations, including use of jibs, hoists and cranes	Use of hoists, jacks or mechanically assisted lifting devices	Use of powered lifting devices, including fork lifts or powered plant	Work involving gantry, mobile or tower cranes	Lifting Equipment	HSE Lifting Operations and Lifting Equipment Regulations (LOLER) webpages		
	HS412. Hot work	Work with heat sources including soldering, braising, welding or cutting	Soldering or use of hot air guns	General heat treatment, braising or use of blow torches	Welding and cutting	Risk Assessment	HSE COSHH essentials for welding, cutting and allied tasks webpage		