

Risk Assessment Form

General Risk Assessment

Equipment / Activity / Area being assessed	Exploding Hydrogen and Oxygen Bubbles	Risk Assessment No:	
Location			
Who is exposed?			
Date of assessment:			
Assessor's name:			
Next Review date:	but continual assessment as dictated by operational requirements or changes in Health and Safety Law, regulations or Approved Codes of Practice.		

	Hazard	Control Measures already in place to control the risk	What additional Control Measures are required?	Risk rating (H, M, L)	Completed/ Escalated to:
01	Hydrogen gas (CLEAPSS Student Safety Sheet 50)	Hydrogen is extremely flammable and so will be kept clear of any possible ignition source. Gas reserves will be locked away from the main building and all presenters will be trained.		L = 1 S = 5 R = 5 = L	
02	Oxygen gas (CLEAPSS Student Safety Sheet 51)	Oxygen is oxidising and can fuel combustion and so gas reserves will be locked away from the main building and all presenters will be trained.		L = 1 S = 5 R = 5 = L	
03	Pressurised gas cylinders	All members of staff using gas cylinders will be fully trained and have access to a safe <u>method and use of cylinders instructions</u> . Cylinders will be stored and locked in the Energy Centre pump house away from members of the public.		L = 1 S = 3 R = 3 = L	

04	Burns/damage from hydrogen-oxygen bubble combustion.	Only presenters will undertake the demonstration and will wear safety goggles throughout. All presenters will be fully trained on how to carry out the experiment. Balloons are colour coded to signify which contain a mixture of hydrogen and oxygen. All ignition sources will be kept away from oxygen-hydrogen balloon until the demonstration is ready. Prepared balloons will be stored out of sight of public. Public will be positioned a safe distance away.	Blast screen for the demonstration to take place behind. First aider on call.	L = 1 S = 4 R = 4 = L	
05	Fire risk from hydrogen-oxygen bubble combustion.	Any potentially flammable material will be removed from the demonstration area. Appropriate/suitable clothing will be worn throughout for the demonstration. Presenters will be fully trained and a fire extinguisher will be readily available in the demonstration area.	Member of security aware of the experiment and on radio.	L = 1 S = 4 R = 4 = L	
06	Ear damage from hydrogen-oxygen bubble combustion.	Presenters who will be lighting the hydrogen balloon will wear ear defenders whilst carrying out the experiment. Members of the public in the area will be warned that there will be a loud bang and that if they wish they may choose to place their hands over their ears or leave the area altogether if they feel that they may be adversely affected by the noise. Members of staff in the centre will be aware that these experiments will be taking place.	Member of security aware of the experiment and on radio.	L = 1 S = 3 R = 3 = L	
07	Slipping due to water spillage	Audience will be positioned at a safe distance from the demonstration. All spillages should be mopped up immediately after occurring. If this is not possible signs should be placed to warn of the spillage.	First aider on call to provide treatment if necessary. Safe and sufficient lighting in the demonstration area.	L = 1 S = 2 R = 2 = L	

08	Electrocution due to water spillage	Audience will be positioned at a safe distance from the demonstration. All spillages should be mopped up immediately after occurring. If there is concern of electrocution due to mopping up of spillage then access to the area will be restricted. All electrical equipment will have been PAT tested.	Demonstration will be undertaken away from risk areas.	L = 0 S = 5 R = 0 = L	
09	Trip hazards	Any wires and cables will be secured by tape or cable-tidies. Any trip hazards that cannot be moved or minimised will be clearly sign posted.	Ensure safe and sufficient lighting in the area. Extra staging to be added to the Mars Yard to provide a flat surface for Presenter. First aider on call to provide treatment if necessary.	L = 1 S = 2 R = 2 = L	
10		<p>All staff are trained with relevant legislation under the following:</p> <p>The Health and Safety ant Work act 1974</p> <p>Workplace (Health, Safety and Welfare) Regulations 1999</p> <p>Control of substances Hazardous to Health Regulations 2002</p> <p>Manual Handling Operations Regulations 1992</p> <p>Personal Protective Equipment Regulations 1992</p> <p>The Management of Health and Safety Regulations at Work Regulations 1999</p>	<p>All staff fully trained in respect of the correct use of manual handling, to comply with Manual Handling Regulations (1992) and the correct use of PPE to comply with the Personal Protective Equipment Regulations (2002),</p> <p>Staff training in all aspects of health and safety procedures applicable is</p>	<p>All elements of In house training are delivered by an 'on line' video training package, or by DVDs supplied by Safety Media Ltd.</p> <p>This ensures current legislation is always relevant and available</p>	

		<p>Health and Safety (Display Screen Equipment) Regulations 1992</p> <p>The Regulatory Reform (Fire Safety) Order 2005</p> <p>The Control of Noise at Work Regulations 2005</p> <p>The Health and Safety (First-Aid) Regulations 1981</p> <p>The Health and Safety (Consultation with Employees) Regulations 1996</p> <p>The Health and Safety (Safety Signs and Signals) Regulations 1996</p>	<p>achieved by all members of staff participating in internal Health and Safety workshops.</p> <p>All workshops and training sessions are facilitated by SM Brooks, Security and Safety Manager, and takes the form of both theoretical and practical interactive workshops.</p> <p>All aspects of training required are delivered by specific training videos and CDs.</p> <p>All training is recorded, and records held by the Personnel Manager for future reference and plan future training workshops in response to any subsequent changes in Health and Safety legislation.</p>	<p>Training should be sufficient and targeted to the individual job role.</p> <p>Elements covered are:</p> <p>An introduction to Health and Safety:- all staff receives this as part of induction.</p> <p>COSSH: the Facts</p> <p>PPE-The Facts</p> <p>Fire Essentials video</p> <p>Fire Safety-The Facts</p> <p>DSE-The Facts</p> <p>Watch your back- Manual Handling in the work place</p>	
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		<p>The Safety Representatives and Safety Committees Regulations 1977</p> <p>The Provision and Use of Work Equipment Regulations 1998</p> <p>The Work at Height Regulations 2005</p>	<p>All staff training is recorded and countersigned by the staff member, to confirm that all staff has had suitable and that sufficient training is relevant and targeted to their individual job role.</p>		
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Risk Rating Scale

Risk = Likelihood of injury x Severity of injury

R = L x S

Low risk = 0 – 6, Medium risk = 7 - 12, High risk = 13 - 25

		S = Severity of injury					
		No injury or illness (0)	Minor injury or illness (1)	First aid injury or illness (2)	“3 day” injury or illness (3)	Major injury or illness (4)	Fatality, disabling injury, etc (5)
L = Likelihood of injury	Zero to very low (0)	0 = Low	0 = Low	0 = Low	0 = Low	0 = Low	0 = Low
	Very unlikely (1)	0 = Low	1 = Low	2 = Low	3 = Low	4 = Low	5 = Low
	Unlikely (2)	0 = Low	2 = Low	4 = Low	6 = Low	8 = Medium	10 = Medium
	Likely (3)	0 = Low	3 = Low	6 = Low	9 = Medium	12 = Medium	15 = High
	Very likely (4)	0 = Low	4 = Low	8 = Medium	12 = Medium	16 = High	20 = High
	Almost certain (5)	0 = Low	5 = Low	10 = Medium	15 = High	20 = High	25 = High