|  |  |
| --- | --- |
| **Department** |  |
| **Date** |  |
| **Laboratory** |  |
| **Description of activity involving ‘classified’ materials (including day to day operation, cleaning and maintenance)** |  |
| **Storage Location** |  |

Areas identified as using / storing substances captured by the DSEAR requirements are required to complete this risk assessment and ensure that control measures identified are transferred in the ‘Laboratory Rules’ and communicated to all who have the need to work in the laboratory.

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| **Hazardous Properties**  Note: - This requirement is in addition to other assessments that will be required to develop the Laboratory Rules such as COSHH. By carrying out this assessment it is assumed that other less hazardous alternatives have been considered, please provide details below. | | | | | | | |
|  | | | | | | | |
|  | | | | | | | |
| **Substances being handled, stored or produced** | | | | | | | |
| **Name** | | | | | | **Quantity** | |
|  | | | | | |  | |
|  | | | | | |  | |
|  | | | | | |  | |
|  | | | | | | | |
| **Substances in use / proposed to be used, are they classified as** | | | | | | | |
| Explosive |  | Oxidising |  | Flammable | | |  |
| Highly Flammable |  | Extremely Flammable |  | Flash point <32C | | |  |
| Environmental Factors |  | Release of vapour / gas could produce explosive atmosphere | | | | |  |
|  | | | | | | | |
| **Conditions for use** |  |  | | | | |  |
| Ambient Temp and Pressure |  | High Temperature |  | High Pressure | | |  |
| Enriched Atmosphere |  | Inert Atmosphere |  |  | | |  |
|  |  |  | | | | |  |
| **Product / bi-product of an in-house process** | | | | | | | |
| Explosive |  | Oxidising |  | | Flammable | |  |
| Highly Flammable |  | Extremely Flammable |  | | Flash point <32C | |  |
| Release of vapour / gas could produce explosive atmosphere | | | | | | |  |
| *Where no substances have been identified above then there are no further actions in this assessment* | | | | | | | |
| **Under what circumstances could a failure give risk to fire or explosion, also note any potential sources of ignition** | | | | | | | |
|  | | | | | | | |

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| **Control Measures** | **Yes** | **No** | **N/A** |
| Can the substance be substituted for less flammable / explosive  *Where this is ‘Yes’ a further assessment will be necessary to ensure risk is reduced* |  |  |  |
| Quantity of substance stored / used reduced to a minimum |  |  |  |
| Steps been taken to avoid or minimise releases (Intentional & unintentional) |  |  |  |
| Steps taken to prevent the formation of explosive atmosphere  *Provide detail here* |  |  |  |
| Fume cupboard or ventilation used  *Give detail below of any other ventilation used / required to remove releases to a safe place* |  |  |  |
|  | | | |
| Steps been taken to avoid adverse conditions (e.g. exceeding temperature limits or other controls) |  |  |  |
| Substances stored in accordance with compatibilities |  |  |  |
| Has the number of people exposed to the dangerous substances or explosive atmospheres been reduced to a minimum |  |  |  |
| Others working in vicinity aware of hazards and action |  |  |  |
| Plant in use is explosion resistant |  |  |  |
| Explosion pressure relief provided and fit for purpose |  |  |  |
| Adequate controls in place to minimise spread of fire / explosion |  |  |  |
| Suitable PPE provided, staff trained in correct use and used when appropriate |  |  |  |
|  | | | |
| **Workplace / process / management systems appropriate to the nature of the activity**  System safety design – e.g. Schrader fittings, bursting discs etc. Provided details below | | | |
|  | | | |
|  | **Yes** | **No** | **N/A** |
| Workplace designed, constructed and maintained so as to provide adequate fire resistance and/or explosion relief |  |  |  |
| Any installation, plant, rig, equipment, protection system etc., designed so as to minimise the risk of fire and / or explosion |  |  |  |
| Any installation, plant, rig, equipment, protection system etc., used in such a way as to minimise the risk of fire and / or explosion |  |  |  |
| Safe systems of work, or other required procedures developed and communicated to all persons who may be affected |  |  |  |
| Flammable substances kept in a suitable fire resistant cabinet, total for laboratory not to exceed 50 litres of highly flammable, flashpoint <32⁰C |  |  |  |
| Has the Head of Local Safety Committee or other Senior Departmental Administrator been informed? |  |  |  |
| **Zoning and control of explosive atmospheres (if not applicable, tick here and proceed to next section *See Appendix 1 – Zone Guidance*** | | |  |
|  | | **Yes** | **No** |
| All areas classified into zones in accordance with Schedule 2 of the Regulations | |  |  |
| Where necessary, have such classified zones been marked at their entry points with the specified ‘EX’ hazard warning sign | |  |  |
| All such areas appropriately protected from sources of ignition, through the selection of equipment and protective systems compliant with the Equipment and Protective systems Intended for Use In Potentially Explosive atmospheres Regulations 1996 | |  |  |
| People working in protected zones provided with clothing that does not create a risk of electrostatic discharge | |  |  |
| Areas where explosive atmospheres may be present, before their first operation been verified as being safe by a person competent in the field of explosion protection | |  |  |
|  | | | |
| ***Storage*** | **Yes** | **No** | **N/A** |
| All flammable substances kept is suitable fire resistant storage |  |  |  |
| All quantities in excess of 50 litres (highly flammable, extremely flammable, flash point <32⁰C) kept in dedicated and protected flammable store |  |  |  |
| Substances stored in accordance with compatibilities / incompatibilities |  |  |  |
| Where necessary have storage areas been designed to provide explosion relief |  |  |  |
| ***Emergency Procedures (Inc potential environmental incidents)*** |  |  |  |
| Suitable emergency procedures developed and communicated to all personnel who deal with adverse process conditions (e.g. thermal runaways, exceeding control settings etc.) |  |  |  |
| Suitable emergency procedures developed and communicated to personnel on fire action |  |  |  |
| Suitable emergency procedures developed and communicated to personnel on action on spillage of a dangerous substance |  |  |  |
| ***Waste Disposal*** |  |  |  |
| Suitable procedures developed and communicated to personnel on requirements for safe transport and safe disposal of dangerous substances |  |  |  |
| ***Information, Instruction and Training*** |  |  |  |
| Appropriate information, instruction and training, commensurate with the hazard potential of the dangerous substances or process, provided to personnel inc. product detail, hazards present. Risk reduction methods, management systems to be followed, emergency action etc. |  |  |  |

Where any questions relevant to a dangerous substance being used, handled or stored has returned a ‘No’ response, the subject area should be revisited to ensure that all required and reasonably practicable risk reduction methods have been employed.

**Conclusion**

The risks from the hazard potential of the dangerous substances and/or explosive atmospheres identified in this risk assessment must be reduced to the lowest possible level reasonable practicable.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Has this been achieved | | | Yes |  | No |  |
| **Name of assessor** |  | | | | | |
| **Signature** |  | | | | | |
| **Date of assessment** |  | | | | | |
| **Date for review** |  | | | | | |

|  |  |  |
| --- | --- | --- |
| **Safe system of Work (DSEAR)** *must be communicated to work force as part of ‘Lab Rules’.*   |  | | --- | | Dangerous Substances identified as used / created | | |
|  |  |
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This includes their handling, storage and ability in the form they present in the work situation, to result in an explosive atmosphere, the following safe system of work (lab Rules) **must** be observed and adhered to at all times.

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**Appendix 1 Zoning Guidance**

**Hazardous area zones and equipment categories**

Hazardous places are classified in terms of zones on the basis of the frequency and duration of the occurrence of an explosive atmosphere.

**Gases, vapours and mists**

For gases, vapours and mists the zone classifications are:

Zone 0 A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is present continuously or for long periods or frequently.

Zone 1 A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is likely to occur in normal operation occasionally.

Zone 2 A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

**Dusts**

For dusts the zone classifications are:

Zone 20 A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods or frequently.

Zone 21 A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur in normal operation occasionally.

Zone 22 A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

*Notes:*

1. Layers, deposits and heaps of combustible dust must be considered as any other source which can form an explosive atmosphere.
2. "Normal operation" means the situation when installations are used within their design parameters.

**Equipment** categories and zones

The hazardous area zone classification and corresponding equipment categories are:

Zone 0 or zone 20 - category 1 equipment

Zone 1 or zone 21 - category 2 equipment

Zone 2 or zone 22 - category 3 equipment

*Notes:*

1 Category 1 equipment can also be used in zones 1 and 21 and category 1 and 2 equipment can be used in zones 2 and 22.