

 Dangerous Substances and Explosive Atmospheres

 Risk Assessment (DSEAR)

|  |  |
| --- | --- |
| School/Service |  |
| Location |  | Next Review Date |  |
| Completed by |  | Date |  |
| Authorised by |  | Date |  |

|  |
| --- |
| 1. **Substance Information**
 |
| **Substance’s used, stored or produced** | **Tick if applies** |
| Substance(s) is a proprietary product |  |
| Substance(s) is produced by in house process or is a by-product |  |
| Substance is a dust which may form an explosive atmosphere. |  |
| Explosive |  |
| Oxidising |  |
| Pyrophoric |  |
| Extremely Flammable |  |
| Highly Flammable |  |
| Flammable |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of Substance** | **Form e.g. vapour/gas/dust** | **Quantity** | **Lower Explosive Limit (%)** | **Is the Flash Point lower than 32oC?** |
|  |  |  |  |  |
|  |  |  |  |  |

|  |
| --- |
| 1. **Activity/ Process Information**
 |
| **Describe activity:**  |
| **Potential source release & size of release.** | **Likelihood Flammable or explosive atmosphere****(0-3)** | **Operating pressure** | **Operating temperature** | **Ventilation type** | **Degree of ventilation** | **Zone classification** | **Zone extent** |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Definitions:** |
| Likelihood of Flammable or explosive atmosphere | Ventilation type | Degree of Ventilation | Hazardous Zone classification |
| **3**= Continuous during normal operation**2**=Primary release (expected in normal operation)**1**=Secondary (not expected in normal operation)**0**= negligible  | **Natural /Open air****Artificial** | **High** = can reduce concentration below LEL immediately**Medium** = can control concentration to stable zone, explosive atmosphere does not exist after release stops.**Low** = cannot prevent explosive atmosphere in progress or after release stops. | **0** = explosive atmosphere present for long periods/continuous**1** = explosive atmosphere likely to occur in normal operation**2** = explosive atmosphere not likely to occur in normal operation but if it does will persist for short period only. |

|  |
| --- |
| 1. **Ignition Sources**
 |
| Ignition Category | Likelihood of ignition source occurring during: | Comments |
| Normal operation(0-3) | Dispensing or transferring activity(0-3) | Maintenance(0-3) |
| Heat |
| Identify type |  |  |  |  |
|  |  |  |  |  |
| Mechanical |
| Identify type |  |  |  |  |
| Chemical |
|  |  |  |  |  |
|  |  |  |  |  |
| Electrical |
| e.g. static, |  |  |  |  |
| Definitions: |
| Likelihood of ignition occurring**3** = present continuously or for long periods**2** = Likely to occur**1** = Not likely to occur or infrequent for short periods**0** = not present |

|  |
| --- |
| 1. **Risk Assessment**
 |
| Identified Hazard | Likelihood of flammable/explosive atmosphere(part 2.) | Likelihood of ignition occurring(part 3) | Likelihood of fire or explosion(release x ignition) | Severity of harm(H/M/L) | Level of risk(R1 to R5) | Existing control measures | Additional measures required (give details)? |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Definitions: |
| **Severity of harm:****H** = Major impact/damage or injury/fatality**M** = Serious impact/damage or lost time injury**L** = Minor impact/damage or minor injury |

|  |
| --- |
| **Level of Risk** |
| Likelihood of fire | Severity of Harm |
| High | Medium | Low |
| 6-9 | R1 | R2 | R3 |
| 3-5 | R2 | R3 | R4 |
| 1-2 | R3 | R4 | R5 |
| **R1** = unacceptable risk, risk must be reduced before work starts.**R2** = Substantial risk, immediate additional control measures needed to reduce risk to acceptable level.**R3** = moderate risk, efforts should be made to reduce risk further within a defined period.**R4**= risk is controlled using existing measures, monitoring of controls required.**R5**= no action required. |

 |

|  |  |  |
| --- | --- | --- |
| 1. **Action Required**
 | **By whom?** | **By When?** |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
|  | **Date** |
| **Signed** |  |  |

|  |
| --- |
| **Control Measures Check list** |
| **Process /Activity** | Yes,No or NA |
| Has the quantity used/stored been reduced to a minimum? |  |
| Have measures been taken to avoid/minimise release at source? |  |
| Controls in place to contain and remove releases to a safe place e.g. by ventilation or extraction? |  |
| Measures in place to avoid adverse conditions (e.g. exceeding pressure limits, temperature limits, ignition sources) |  |
| Does the substance react exothermically with other substances used in the area? |  |
| How are incompatible substances segregated during use and storage? |  |
| Have number of individuals exposed been reduced to a minimum? |  |
| Has plant/equipment been supplied that is fire/explosion resistant? |  |
| Is explosion suppression or relief provided where necessary? |  |
| Have measures been taken to control or minimise the spread of fire? |  |
| If there is a need for PPE, has suitable PPE been provided and individuals trained in its correct use? |  |
| **Workplace and Safety management systems**. |
| Is the workplace designed, constructed and maintained to provide adequate fire resistance? |  |
| Is plant/equipment designed and used in a way to minimise the risk of fire/explosion? |  |
| Have safe systems of work been developed and communicated to individuals carrying out the work? |  |
| If hot works are being carried out, is a permit to work required within the work area? |  |
| Is plant and equipment subject to an appropriate inspection, maintenance and replacement schedule? |  |
| Is plant and equipment tested in accordance with any statutory testing requirements? |  |
| **Storage** |
| Are quantities stored within accepted limits and kept to a minimum?  |  |
| Are flammable substances stored within suitable fire resistant storage where appropriate (eg solvents within laboratory areas) |  |
| Are incompatible substances segregated? |  |
| Is there an inspection and replacement regime for potentially unstable substances e.g. picric acid, peroxide forming substances etc. |  |
| **Emergency Procedures** |  |
| Are emergency procedures in place to deal with adverse process conditions (e.g. exceeding operating limits) |  |
| Are emergency procedures in place to deal with fire and evacuation? |  |
| Are emergency procedures in place to deal with hazardous substance spills? |  |
| **Waste Disposal** |  |
| Are suitable procedures in place to manage hazardous substance disposal? |  |
| **Information, Instruction and Training?** |  |
| Is information and instruction about the materials, hazards and control measures which should be followed been provided to the relevant individuals? |  |
| Have specific training needs been identified and implemented? |  |
| Has a safe system of work been documented and disseminated to relevant individuals? |  |
|  |  |