

Dangerous Substances and Explosive Atmospheres

Risk Assessment (DSEAR)

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

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| 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 |  |

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

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| 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 | | | | |
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| 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 | | | | |

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| 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)? |
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| 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. | | | | | | | | |

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| 1. **Action Required** | **By whom?** | **By When?** |
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|  | | **Date** |
| **Signed** |  |  |

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| **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? |  |
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