**Guidance on Chemical Risk Assessment (CRA)**

* The purpose of this Chemical Risk Assessment (CRA) is to assess the hazards to health, and other identified hazards and risks, associated with the use of chemicals and other hazardous substances and to put into place suitable control measures to enable work to proceed safely.
* General risk assessments for the procedure will be required to accompany this CRA.
* Put in as much relevant detail as possible for all the sections (if appropriate use continuation pages. You must assess both the risks to yourself and others in the working environment.
* If you are unsure about any aspect of the activity, then seek advice from your supervisor or someone who has suitable expertise in that area.
* All CRAs must be approved by a supervisor and in some cases verified/checked by a Safety Advisor **in advance** of starting the work, i.e. during the planning stage of the work, not the day before. You must check the approval procedure applicable in your School.
* Live CRAs must be kept local to the activity in accordance with local School procedures. On occasion, you may be asked to discuss your work and the associated risk assessments. Should this prove to be unsatisfactory, you may be asked to resubmit your assessments. You must check the procedure applicable to your School.
* They must be reviewed at least annually or when significant changes occur.
* Any risk assessments not completed correctly will result in repeat submission, and consequently a delay in commencing your work

Each section of the form has a number. Please see the table below for guidance.

The SDS used in this guidance is from Sigma Aldrich - [www.sigmaaldrich.com/united-kingdom.html](http://www.sigmaaldrich.com/united-kingdom.html)

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| 1 | In case of Emergency | |
| Services used | Tick as appropriate and detail gases (E.g. electricity, water, gases, others) |
| Action in case of Fire | Provide instructions on what to do in the event of a fire. Consult local arrangements and information from applicable SDS |
| First aid requirements | Specify first aid instructions. Consult local arrangements and information from applicable SDS |
| Spillage and release measures | Provide instructions on what to do in the event of spillage or release of substances for both the activity and any stored. |
| 2 | Fire Fighting Medium | Specify the type required: CO2, Powder, Foam, Water or Other as applicable. Consult local arrangements and information from applicable SDS |
| 3 | Risk Assessment Number/Code | If not applied automatically this needs to be assigned by the safety advisor. You must check the procedure within your School. |
| 4 | Assessor’s name and status | Enter details of the person completing the assessment.  Enter Status e.g. Academic supervisor, PDRA, PhD, MSc etc. |
| 5 | Emergency contact details | This information would normally be the assessor and approver of the risk assessment. |
| 6 | Assessment Date | Date of assessment |
| 7 | Review/Expiry Date | Date when the assessment needs to be reviewed  This should be at least annually or when significant changes occur**.** |
| 8 | Building and office number | Location of where the assessor is based |
| 9 | Lab Number | Location of where the activity will be conducted even if not strictly a laboratory. |
| 10 | People Affected | Detail any co-workers otherwise detail groups of people such as; other lab users, cleaners etc. |
| 11 | Title of procedure | Insert the title of your activity. |
| 12 | Details of procedure | List the steps or outline what the activity is. Be specific and include significant hazards (E.g. Starting materials, products/by-products, temperature range, pressure, compressed gases, use of machinery etc. Schematic diagram of the chemical reaction should be used if appropriate ) |
| 13 | Duration, Frequency and temperature range: | Length of the activity (e.g. 30mins, 2 hrs), how frequently it is performed (e.g. once a day, once a week) and the range of temperature to be used. (e.g. 100 – 120 °C) *Note: the temperature must be in °C for wider comprehension.* |
| 14 | Associated Assessments and Ref | Other risk assessments, e.g. general, biological and references for the procedures that the chemicals are used, e.g. SOP. Provide all relevant reference numbers. |
| 15 | Substances used and produced | Insert name of all the hazardous substances to be used in the experiment, including the physical form and CAS numbers (*SDS Section 1)* |
| 16 | Quantities used and handled | Insert quantity and concentration of each substance used and handled (e.g. mg, g, %) |
| 17 | Duration of potential exposure | Approximate length of potential exposure to each substance (e.g. 5 mins or 1 hr) |
| 18 | Hazard Symbols | Select the applicable Hazard Pictogram for each substance *(SDS Section 2) Note: If you are working on the word for mac, then you will not be able to select the pictogram. In this instance copy the pictogram from the bottom of the document into place holders.* |
| 19 | Physical and health hazard statements | Insert H codes and Hazard Statements for each substance *(SDS Section 2)* |
| 20 | Workplace Exposure Limits | Specify Time Weighted Average (TWA) and Short Term Exposure Limit (STEL) for each substance if applicable *(SDS Section 8)* |
| 21 | Control Measures | Specify the location of where each substance is stored (e.g. lab bench, fridge, flammables cabinet). Consider incompatibilities. A*lso, consult SDS Section 7 & 10* |
| Fume Cupboard or Glove Box  Segregation (Specify)  Other Extraction (Specify)  Lab Coat (identify type)  Safety Glasses (BS EN 166), Goggles (BS EN 166) or Face Visor (BS EN 166)  Gloves (BS EN 374)- Specify type and thickness *(SDS Section 8, Splash Contact)*  Buddy System (Specify)  Others (Specify) |
| Specify the conditions to avoid while using the substances, e.g. avoid moisture, heat, sparks *(SDS Section 10)* |
| Specify (i) substances in the experiment that are incompatible with each other and the controls to be used where appropriate.  (ii) all other substances the chemicals should not be mixed with or be stored with *(SDS Section 10)* |
| 22 | Disposal Route | Specify on how to dispose of the waste produced, e.g. Non-hazardous waste, Hazardous Solid, Hazardous Liquid, Halogenated, Organic, and Heavy Metal  If collecting hazardous waste, specify how this is carried out and the controls required |
| 23 | Extremely or Highly Flammable? | If your substance meets either statement below tick the box on the CRA.  **Extremely flammable**  Liquids which have a flashpoint lower than 0°C and a boiling point (or, in the case of a boiling range, the initial boiling point) lower than or equal to 35°C.  **Highly flammable**  Liquids which have a flashpoint below 21°C but which are not extremely flammable.  This information can be found in the (*SDS Section 9)* |
| 24 | Operation type | Specify if the procedure will be open/ closed/ pressurised/ using pressure relief system/ other or N/A |
| 25 | Risk of thermal runaway | Specify if the activity/chemical reaction is at risk of a thermal runaway or explosion. If yes, provide details of the additional controls |
| 26 | Pyrophoric or peroxide | Specify if the activity involves the use of pyrophoric or other unstable substances. If yes, provide details of the additional controls |
| 27 | Risk of an explosive atmosphere | Specify if the substances used or the activity has the potential of forming an explosive atmosphere. If yes, provide details of the additional controls. Calculations may be required to demonstrate and should be entered here if appropriate. Consult the Lower Explosive limit for this information *(SDS Section 9)*. |
| 28 | Can less hazardous substances be used? | State if you can replace with less hazardous substances |
| 29 | Procedure for checking the effectiveness of control measures | Specify checking procedures  (E.g. How to ensure LEV is working effectively; What to do if the gloves become contaminated) |
| 30 | CMRs, Sensitisers, Asthmagens & Nanoparticles | Specify if any substance used is a CMR, sensitiser, asthmagen or nanoparticle *(SDS Section 2)*  Please confirm that a fitness to work certificate is up to date for all those affected by selecting “Yes”. If not, select “No” and ensure Occupational Health is informed of the additional substances being used. If an individual doesn’t already have a fitness to work certificate, they will need to complete the [Lab Screen Questionnaire](http://documents.manchester.ac.uk/display.aspx?DocID=12133) and return it to Occupational Health. |
| 31 | If any of the Substances above are Highly flammable and Extremely Flammable, What control measures are in place? | If the Highly flammable and Extremely Flammable box is selected for a substance, you must detail the control measures to prevent ignition. |
| 32 | Lone working | Specify additional controls if the activity is permitted for lone working. You must check the procedure at your School. |
| 33 | Out of hours working | Specify additional controls if the activity is permitted for out of hours working. You must check the procedure within your School. |
| 34 | Additional control measures | Outline hazards from any reaction (e.g. exothermic, fumes, toxic gases) that may arise during the process and detail how these will be controlled.  Specify any additional control measures or relevant information associated with the activity |
| 35 | Risk Rating | On a rating of Likelihood vs Consequence, how would you score the residual risk of the experiment with all control measures in place? This Low, Medium or High.  Use the image below to help visualise this. |
| 36 | Signature of Assessor | Signed by the person completing the assessment. You must check the procedure within your School. |
| 37 | Signature of Approver | Signed by the Academic Supervisor approving the work. You must check the procedure at your School. |
| 38 | Signature of Verifier | Signed by Safety Advisor if necessary. You must check the procedure within your School. |