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| Deakin University**Work Safety Assessment:** **Chemical Hazards** |  |

Last Update: 3 January 2019

Owner: Health Wellbeing and Safety (HR)

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|  **Instructions** |
| 1. Download a copy of the most recent version of this form from the [OHS web site](https://www.deakin.edu.au/students/health-and-wellbeing/occupational-health-and-safety/health-and-wellbeing/project-safety-plans).2. Complete this form with the assistance of your Supervisor prior to beginning work to record identified hazards associated with all teaching or research work involving hazardous chemicals and hazardous chemical processes, and the control measures which will be used to reduce the associated risk.3. Forward this form and WSA Overview electronically to the Local Officer responsible for Chemical Safety for approval & sign-off.4. Once approval has been received, forward this form and Overview electronically to your Work Supervisor for overall approval and sign-off. 5. Work can only commence once overall approval has been received. Ensure all participants have access to the completed form. |
| *Note: Completion and approval of this form is the key way for Deakin University to be assured that the Researcher/Student is aware, trained and adequately supervised in their specific work’s requirements for hazard identification, risk assessment and the implementation of hazard control measures.**This process is part of the requirement to document what has been done to minimise the liability of Deakin University and the personal liability of the Work Leader, Work Supervisor etc., Area Manager and Participants under the Victorian OH&S Act.* |
| **Work Leader: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| **Work or Unit Code: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (Listed in *Section 1: Project Information* of the WSA Overview) |

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|  **Section 1: Summary of chemical aspects** |
| **Routine Work**There is a **defined protocol** for the work with chemical hazards in this project, which is best described as Routine:🞏 Analysis🞏 Synthesis | **Experimental Work**There is **no defined protocol** for work with chemical hazards in this project, which is best described as Experimental or Non-Routine :🞏 Modified or New Analysis 🞏 Synthesis |
| **Provide a brief summary of the proposed work involving hazardous chemicals, using plain language with non-scientific terms.** (Include real and potential chemical hazards, unusual situation hazards, higher hazard chemicals used**,** and any hazardous intermediates or products. Include previous experience with chemical handling if applicable) |
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|  **Section 2: Information about the chemical hazards** |
| **2.1: Dangerous Goods and Hazardous Substances new to work area** |
| All Dangerous Goods (DG) or Hazardous Substances (HS) which enter Deakin University premises must have a risk assessment completed or be covered by a safe work procedure. The GHS system covers the use and handling of hazardous substances. The Dangerous Goods system covers the storage and transport of dangerous goods.Regulations require the Manufacturer’s (Material) Safety Data Sheet (SDS) to be used for risk assessment - these can be accessed through the Chemwatch database (accessible via the [OHS On-line system](https://www.deakin.edu.au/students/health-and-wellbeing/occupational-health-and-safety/chemwatch)) or direct through Manufacturers’ websites. For further information consult the [University OHS Manual](https://www.deakin.edu.au/OHS-Manual).Where materials have previously been assessed, new users must read and understand the assessments.  |
| 2.1.1 Are there any dangerous goods or hazardous substances to be used in this work that are new to the work area? |
| 🞏 No – Go to section 2.2 |
| 🞏 Yes – Risk Assessments or Safe Work Procedures for all new DGs or HSs will be completed prior to work commencing. Go to 2.1.2 |
| 2.1.2 Are the introduced substances significantly different in chemical properties or hazards from the substances currently in use? (e.g. introduction of DG Class 4.3 / H260, H261 / Dangerous When Wet chemicals) |
| 🞏 No - Go to section 2.2 |
| 🞏 Yes – attach a Safe Work Procedure or completed Risk Assessment as an example detailing how the material will be handled |
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| **2.2: Regulated Substances that may require Permits or Licenses** |
| 2.2.1 Does the work involve the use of any of the following regulated substances:  |
| 🞏 Scheduled 2, 3, 4, 7, 8 or 9 medicines or poisons |
| Note: The [University Poisons Guidelines](https://www.deakin.edu.au/__data/assets/pdf_file/0011/228683/poisons-guidelines.pdf) provides compliance requirements; details of the Schedule are available on each SDS |
| 🞏 Therapeutic Goods (which may also be Scheduled Medicines) Note: A comprehensive list of therapeutic goods is available from the [Australian Register of Therapeutic Goods](https://www.ebs.tga.gov.au/). 🞏 Schedule 1 or 2 Carcinogens |
| Note: The [University Carcinogen Guidelines](https://www.deakin.edu.au/__data/assets/pdf_file/0009/228591/carcinogens-guidelines.pdf) lists scheduled carcinogens and compliance requirements |
| 🞏 High Consequence Dangerous Goods (HCDGs) *also called Chemicals of Security Concern (CSC)* (ammonium nitrate & calcium ammonium nitrate in concentrations > 45% ammonia) |
| Note: The [University Chemical Safety Guidelines](https://www.deakin.edu.au/students/health-and-wellbeing/occupational-health-and-safety/health-and-wellbeing/ohs-manual/chemical-safety#High_Consequence_Dangerous_Goods-524139) provides information about HCDGs/CSCs; more detail is available from [Worksafe Vic HCDGs](https://www.worksafe.vic.gov.au/dangerous-goods-safety-basics) and [www.chemicalsecurity.gov.au](http://www.chemicalsecurity.gov.au)  |
| 🞏 Drug precursor chemicals & apparatus  |
| Note: The [University Precursor Supply Guidelines](https://www.deakin.edu.au/__data/assets/pdf_file/0003/228684/precursor-supply-guidelines.pdf) lists compliance requirements, Schedule 1 & 2 precursor chemicals and Schedule 3 precursor apparatus  |
| 🞏 Explosives (DG Class 1) |
| Note: Small amounts of explosives are allowed to be held and used for research purposes. More information should be obtained from [Worksafe Victoria Explosives](https://www.worksafe.vic.gov.au/explosives)  |
| Provide details of any regulated substances in Section 2.2.2 |

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| 2.2.2 Details of regulated substances:  |
| **Substance name** | **Category of Regulated/ Permit substance** (e.g. Medicine/Poison, Therapeutic, Carcinogen, HCDG, Drug Precursor, Explosive) | **Is substance new to work area?** | **Risk assessment available?** | **Safe work procedure available?** |
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| Note: The Officer responsible for chemical safety may request a copy of risk assessments or safe work procedures |
| **Lab Manager to complete:** |
| Are scheduled medicines/poisons covered under the local Poisons Control Plan? | 🞏 Yes | 🞏 No | 🞏 NA |
| Are local procedures for handling scheduled carcinogens in compliance with [University requirements](https://www.deakin.edu.au/__data/assets/pdf_file/0009/228591/carcinogens-guidelines.pdf)? | 🞏 Yes | 🞏 No | 🞏 NA |
| Is the total quantity of HCDGs/CSCs <3kg? (HCDGs are not required to be licenced provided total quantity is <3kg and they are kept in a secure store when not in use) | 🞏 Yes | 🞏 No | 🞏 NA |
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| **2.3: Higher risk chemicals** |
| 2.3.1 Does the work involve the use of any of the following higher risk chemicals (not already identified in 2.2)? If so, provide details in table below. |
| 🞏 Lead & Lead Compounds |
| 🞏 Cyanides |
| 🞏 Hydrofluoric acid |
| 🞏 Phenol |
| 🞏 Osmium tetroxide |
| 🞏 Chromate and Dichromate salts  |
| 🞏 Toxic Gases (DG Division 2.3) (GHS H3330, H331) |
| 🞏 Spontaneously Combustible Solids (DG Division 4.2) (GHS H250, H251, H252) |
| 🞏 Dangerous When Wet Solids (DG Division 4.3) (GHS H260, H261) |
| 🞏 Strong Oxidising Chemicals (DG Division 5.1 PG I or PG II) (GHS H271, H272) |
| 🞏 Organic Peroxides (DG Division 5.2) (GHS H242) |
| 🞏 Sensitising Chemicals (GHS H334, H317) |
| 🞏 Toxic for reproduction (GHS H360, H361, H362) or mutagens (GHS H340, H341) |
| 🞏 Highly Corrosive Chemicals (GHS H314) |
| 🞏 Very Toxic Chemicals (GHS H370) |
| 🞏 Potential Peroxide-Forming Chemicals  |
| 🞏 Persistent Organic Pollutants (e.g. dioxins, furans)See [Department of Sustainability website](http://www.environment.gov.au/settlements/chemicals/international/index.html) for more information |
| 🞏 Chemicals of environmental concern  |
| Note: A written plan for disposing of these chemicals is required |
| Provide details of any higher risk chemicals in Section 2.3.2 |

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| 2.3.2 Details of higher risk chemicals:  |
| **Chemical name** | **Category of higher risk**(eg. Oxidising, Lead Cpd, Toxic Gas, Cyanide, Corrosive, HF, Environmental Concern) | **Is substance new to work area?** | **Risk assessment available?** | **Safe work procedure available?** |
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| **2.4: Novel chemicals** |
| 2.4.1 Does the work involve the synthesis or importation of novel chemicals?  |
| 🞏 No - Go to section 2.5 |
| 🞏 Yes – See Note 2 |
| Notes: (1) If unsure about the status of chemicals, check the [AICS](https://www.nicnas.gov.au/chemical-inventory) (Australian Inventory of Chemical Substances) |
| (2) The [HWS Unit](http://www.deakin.edu.au/about-deakin/faculties-and-divisions/administrative-divisions/human-resources-division) must be contacted in September each year to report synthesis of novel chemicals. If production is >100g for the year to August 31 this is reported to [NICNAS](http://www.nicnas.gov.au/) (National Industrial Chemicals Notification & Assessment Scheme) |
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| **2.5: Large scale reactions** |
| 2.5.1 Does the work involve large scales of dangerous goods in excess of the following quantities in the process at any one time? |
| **Dangerous Goods Class** | **GHS** | **GHS Pictograph** | **Normal Lab Limit** | **Examples** |
| Class 2.1 Flammables Gases | H220, H222, H223 | Flammable GHS symbol | 1.25 kg or 0.25m3   | Hydrogen, LP Gas, Acetylene |
| Class 2.2 Compressed Gases | H280 | Compressed gas or dissolved gas GHS symbol | 1.25 kg or 0.25m3 | Nitrogen, Argon |
| Class 2.2 Cryogenic Gases | H281 | Compressed gas or dissolved gas GHS symbol | 1.25 kg or 0.25m3 | Liquid Carbon Dioxide, Nitrogen, Argon |
| Class 2.2 SubRisk 5.1  Oxidising Gases | H270 | Oxidising substance GHS symbol |  | Oxygen, |
| Class 2.3 Poisonous Gases | H280, H300, H310, H330 | Toxic GHS symbol | 0.125 kg or 0.025m3 | Ammonia, Chlorine |
| Class 3 Flammable Liquids | H224, H225, H226 | Flammable GHS symbol | 2.5 L  | Ethanol, Acetone, Petrol, Kerosene, Diethyl Ether |
| Class 4.1 Flammable Solids, Self-Reactive Substance | H228, H240, H241, H242 | Corrosive GHS SymbolFlammable GHS symbol | 0.5 kg | Metaldehyde, Red Phosphorus, Nitrocellulose products, Sulphur, Magnesium, Picric Acid (wetted) |
| Class 4.2 Pyrophorics and Self heating substances | H250, H251, H252, | Flammable GHS symbol | 0.25 L or 0.25 kg  | Sodium Dithionite, Thiurea Dioxide, White Phosphorus, Yellow Phosphorus |
| Class 4.3 Substances Emitting Flammable Gases When Wet | H260, H261 | Flammable GHS symbol | 0.25 L or 0.25 kg | Sodium, Calcium Carbide, Aluminium Phosphide |
| Class 5.1 Oxidising Agents | H271, H272 | Oxidising substance GHS symbol | 0.5 L or 0.5 kg | Ammonium Nitrate, Potassium Permanganate |
| Class 5.2 Organic Peroxides | H240, H241, H242 | Corrosive GHS SymbolFlammable GHS symbol | 0.25 L or 0.25 kg | MEK Peroxide |
| Class 6.1 Toxic Substances | H300, H301, H310, H311, H330, H331, H334,H340-H373 | Toxic GHS symbolRespiratory  hazard, carcinogencity GHS symbol | 0.25 L or 0.25 kg | Some Pesticides, Some Drugs, Sodium Cyanide |
| Class 8 Corrosives | H314, H318 | Corrosive GHS symbol | 1.25 L or 1.25 kg | Acids, Alkalis |
| 🞏 No - Go to section 2.6 |
| 🞏 Yes - Complete 2.5.2 |
| 2.5.2 Provide details of chemicals used in large scale, reasons why large amounts are required, the processes the large scales will be used in and special control measures to be used to reduce associated risk:  |
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| **2.6: Special procedures** |
| 2.6.1 Does the work require a special location and/or containment facilities, involve high pressure, vacuum or other unusual higher risk tasks?  |
| 🞏 No - Go to section 2.7 |
| 🞏 Yes - Complete 2.6.2 |
| 2.6.2 Provide details of special procedure, reasons why it is required and specific control measures to be used to reduce associated risk:  |
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| **2.7: Other chemical hazards** |
| 2.7.1 Does the work involve any other chemicals or processes which are outside of the normal understanding and training of a researcher commencing work in this area, which have not been previously addressed or covered by local safe work procedures?  |
| 🞏 No - Go to section 3 |
| 🞏 Yes - Complete 2.7.2 |
| 2.7.2 Provide details of chemical or process, reasons why it is required and specific control measures to be used to reduce associated risk:  |
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**Supporting Information**

1. Hazardous Substances of concern are indicated by the HSIS (Hazardous Substance Information System) Hazard Statements listed on the Manufacturer’s SDS or can be referenced at the HSIS website (<http://hcis.safeworkaustralia.gov.au/> ).

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|  **Section 3: Control measures** |
| Identify and provide details of controls that are or will be put in place to reduce the overall risk level |
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| **Elimination & Substitution** | **Details** |
| Has elimination of the hazard been considered? |  |
| 🞏 Yes | 🞏 No |
| Has substitution of the hazard for a less hazardous material or technique been considered? |  |
| 🞏 Yes | 🞏 No |
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| **Isolation & Engineering Controls** | **Details** |
| 🞏 Specific storage measures outside of normal Dangerous Goods Regulations (e.g. locked safe) |  |
| 🞏 Serious Heath Effect Chemicals stored separately (H334, H317, H340, H350, H360, H372, H373) |  |
| 🞏 Fume cupboard/glove box |  |
| 🞏 Shielding |  |
| 🞏 Other |  |
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| **Administrative Controls** | **Details** |
| 🞏 Written Chemical Disposal Plan |  |
| 🞏 Spill and Emergency procedures. List procedures to be used including appropriate contact details (provide a copy) |  |
| 🞏 Special Warning Signs on Lab/Storage/ Work areas  |  |
| 🞏 Environmental monitoring (provide Safe Operating Procedure (SOP) if available) |  |
| 🞏 Controlled work area  |  |
| 🞏 Health surveillance (provide SOP); contact OHS Unit for more detail |  |
| 🞏 Training in DG/HC regulations and general chemical management previously completed. Provide date and location of training |  |
| 🞏 AS/NZS 2243 Part 2 (Chemical Aspects) and Part 10 (Storage of Chemicals) obtained and reviewed |  |
| 🞏 Specific training for special, unusual and higher hazard chemicals to be used previously completed. Provide date and location of training |  |
| *Is training required before work commences?* | 🞏 Yes | 🞏 No, previously completed |
| 🞏 Other Administrative Controls |  |
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| **Personal Protective Equipment** | **Details** |
| 🞏 Any PPE outside of normal lab requirements (ie. glasses, lab coat, protective footwear) |  |
| 🞏 Any special PPE testing prior to use required (e.g. Gloves for HF use need to be inflated in water, prior to each use, to check that no pinholes have developed.) |  |

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|  **Section 4: Safety Officer Approval** |
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| **Local Officer responsible for Chemical safety** |
| Comments and Conditions |
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| I believe so far as is practicable that the chemical hazards described for this work have been fully identified, and that the controls implemented are adequate to minimise risk as much as possible.  |
| **Name:**  | **Position Title:** |
| **Signature:** | **Date:** |

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| **Chemical Safety Contacts** |
| **University Contacts** | **Faculty / School / Division** | **Phone/Email** |
| Warren KennedySenior OHS Consultant | HWS Unit (B) | (03) 924 68269warren.kennedy@deakin.edu.au  |
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