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|  UTM UNIVERSITI TEKNOLOGI MALAYSIA | UNIVERSITY LABORATORY MANAGEMENT UNIT (UPMU) | SOP No. | CMC/SOP/9 |
| | | Revision No. | 1/2018 |
| | | Effective Date | 2/2/2018 |
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| GUIDELINES OF PROCUREMENT - CHEMICALS FOR RESEARCH | | | |
| CHEMICAL MANAGEMENT CENTRE | | | |

1.0 INTRODUCTION

The procurement of hazardous chemical is the first entry of a hazard into the workplace. The use of hazardous materials creates variety of risk, thus the person ordering chemicals must be aware of the potential hazards of the substances being ordered. Certain hazardous chemicals are regulated and have specific procurement approval processes for possession and use.

2.0 PURPOSE

To guide the operation of chemical procurement for research purposes on campus. It is also to ensure that compliance issues promulgated by applicable regulatory agencies are considered and addressed before a chemical material is procured. These agencies include Department of Occupational Safety and Health (DOSH), Department of Environmental (DOE) and Ministry of Health Malaysia.

3.0 RESPONSIBILITY AND ACCOUNTABILITY


Purchases must be performed in accordance with UTM's procurement procedures. The Occupational Safety and Health (OSH) risks associated with the purchase must be identified and managed as part of this purchasing process. All parties involved in the chemical purchase, receipt and/or use of the goods including staff, students and other external parties, are responsible for ensuring the purchasing arrangement include OSH considerations and arrangement, with proper communication to the relevant individual.

4.0 ORDERING CHEMICALS

There are several consideration related to risk control before purchasing the chemicals. Considerations should be given to:

4.1 Elimination and Substitution

- Safer alternative
Investigate other chemicals, methods and procedures that may not require the use of chemical hazardous to health. The amount and type of waste generated from an activity should be considered.
- Substitution of less hazardous chemicals
Choose the less hazardous chemicals instead of the one currently used which have more risk. Some major considerations to look at when considering the suitability of potential substitutes are the effectiveness, the compatibility, existing control measure, waste disposal and hazard assessment. For example, hexane can be substituted with heptane. N-heptane will not form toxic metabolite.

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- **Reduce the size**
Always purchase minimal volumes for the rate of use that is required. For example, if only 50 g will be required within a six-month period, buy only 50 g pack size. If large quantity are purchased and then not used, they will require disposal at some point in the future which may increase the cost needed.
- **Reduced the concentration**
Higher concentration of chemicals have a higher potential risk. Always purchase the lowest concentration of chemicals that is as far as practicable for the activity.

4.2 Engineering and Isolation

- **Access to adequate storage facilities**
Always take into consideration about chemical incompatibility, space and stability. For example:
 - An oxidising chemicals should not be placed near the flammable chemicals.
 - The chemical cabinet have enough space for the new chemicals.
 - Refrigerator is available for chemicals which require low temperature storage.
- **Access to specific facilities required for handling**
For example, a fume cupboard or Local Exhaust Ventilation (LEV) is provided and well-functioning which is required as the risk control for chemicals that produce corrosive fumes, stench/odour or flammable vapours.


5.0 ADMINISTRATION AND PERSONAL PROTECTIVE EQUIPMENT

5.1 Regulatory Authorisation

There are a range of specific requirements for regulated chemicals. Check with the relevant authorities.

5.2 Labelling and Re-labelling

Please make sure all chemicals purchased for teaching and research purposes adhere to the CLASS 2013 Regulations. A supplier shall label every packaging of hazardous chemicals legibly and indelibly, containing the following information:


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5.3 Safety Data Sheet

Chemical Safety Data Sheet (SDS) is a document which contains relevant information of the chemicals and is furnished in pursuance of the CLASS 2013 Regulations. It is a regulatory requirement that manufacturer or supplier of a chemical provide an SDS for the chemical purchased, thus please make sure the supplier that has been chosen to supply your chemical is able to supply it together with the SDS. Hard copy of SDS may be provided with the delivery of the chemical. If an on-line system or e-mail is used to provide the soft copy of SDS, the SDS must be printed as the reference in the workplace where hazardous chemicals are used and stored. It is under the responsibility of the user to make sure that the SDS can be easily accessible and updated following the correct format. The correct format of SDS contains the following information accordingly:

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|--|---|
| Section 1: Identification of the hazardous chemical and of the supplier. | Section 9: Physical and chemical properties. |
| Section 2: Hazard Identification. | Section 10: Stability and reactivity. |
| Section 3: Composition and information of the ingredients of the hazardous chemicals. | Section 11: Toxicology information. |
| Section 4: First-aid measures. | Section 12: Ecological information. |
| Section 5: Fire-fighting measures. | Section 13: Disposal information. |
| Section 6: Accidental release measures. | Section 14: Transportation information. |
| Section 7: Handling and storage. | Section 15: Regulatory information. |
| Section 8: Exposure controls and personal protection. | Section 16: Other information. |

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5.4 First Aid, Emergency Response and PPE

Please refer to the SDS supplied with the chemicals.

5.5 Training and Safe Work Procedure

Appropriate training must have been completed by those workers who are going to use the procured chemicals. A safe work procedure must be completed for all high risk activities with workers trained and deemed competent in that procedure. Workers undertaking an activity with a high risk chemicals must have experience in handling hazardous chemicals.

6.0 RECEIVING THE CHEMICAL

6.1 Inspection of Chemicals Upon Arrival

On receipt of the chemicals, use this checklist to inspect:

| Y/N | Aspect |
|-----|--|
| | The special requirements of the chemicals are met. Example: refrigerator, secure/locked storage/receipt only to an authorised person. |
| | Delivered chemicals is as described when ordered. |
| | Packaging is free from contamination. |
| | Delivered chemicals has clear labelling comply with CLASS 2013 Regulations. |
| | Invoice and delivery order is provided for finance purposes. |

When a chemical arrives into the workplace, please make sure the following aspects are complied:


| Y/N | Aspect |
|-----|--|
| | Update the Chemical Inventory and Chemical Register. |
| | Ensure the current SDS is accessible. |
| | Write date of receipt on chemical container. |
| | Store the chemicals correctly and safely. |

6.2 Safe Transporting on Campus

Transporting chemicals is one of the riskiest procedures that takes place in the laboratory and around campus as it may lead to accidental release and exposure of chemicals. CMC has established the Guidelines for Safe Transporting of Chemicals on Campus as a reference.

7. PROCUREMENT WORKFLOW

Please refer to the (i) Flowchart of Application Process and (ii) Flowchart of Payment Process endorsed by CMC.


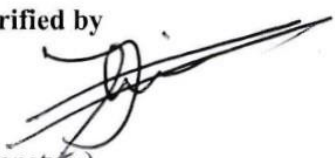
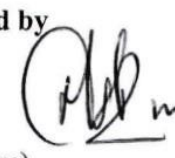
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8. REVIEW AND EVALUATION

Guidelines are reviewed by Chemical Management Centre at least once every two years to identify and implement opportunities for improvement.

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| References | <ol style="list-style-type: none"> 1. Occupational Safety and Health (Use and Standard of Exposure Chemical Hazardous to Health) (USECHH) 2000 Regulations. 2. CLASS 2013 Regulations 3. Guideline for Chemical Procurement, University of Sydney. 4. HWS OHS Purchasing Standard. 5. Chemical Safety Procedure, University of Cambridge. 6. Chemical Procurement Program, Cleveland State University. |
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