Health and Safety Standard

CHEMICAL AND BIOLOGICAL SUBSTANCES

1 PURPOSE

This standard supports the Hazard/Aspect and Risk Assessment Policy and establishes the requirements to protect workers and the environment from the hazards/aspects of chemical and biological substances present in the workplace.

2 SCOPE

This standard applies to all hazardous products (both chemical and biological substances, including waste, but excluding radioactive materials) that are produced, handled, used, stored or disposed of at SaskPower.

Some hazardous products are exempt from WHMIS legislation and are defined under Section 4.3.1.

This standard outlines the minimum requirements that shall be met or exceeded by SaskPower workers and contractors. Failure to comply may result in injuries, damage to equipment and property, environmental harm, performance management or any combination thereof.

The use of the word “shall” within this standard denotes a mandatory action, whereas the use of the word “should” or “may” denotes a recommended action.

3 DEFINITIONS

The following definitions apply to this standard:

Biological Hazards – term applied to organisms or products of organisms that present a health risk to humans.

Biological Substance – a substance that contains living organisms, including infectious micro-organisms, or parts of organisms in their natural or modified forms.

Bulk Shipment – a hazardous product that is contained without intermediate containment or packaging in a vessel with a water capacity equal to or greater than 450 liters, pipeline, road vehicle, or portable tank.

Chemical Substance – any natural or artificial substance, whether in the form of a solid, liquid, gas or vapor, other than a biological substance.

Chemical Protective Clothing (CPC) – an item of clothing that is specifically designed and constructed for the intended purpose of isolating all or part of the body from a biological or chemical hazard.

Consumer Product – a product that is packaged and sold to a consumer for home use. A consumer product may be a hazardous product; however, if single units (*i.e.,* not per case) are purchased from a consumer outlet and brought to the workplace, WHMIS requirements do not apply with respect to the supplier label and the SDS.

Dangerous Goods – products, substances, or organisms included by its nature or by the regulations in any of the classes listed in the schedule to the Act are transported and identified under the Transportation of Dangerous Goods legislation (TDG) or the Hazardous Substances and Waste Dangerous Goods Regulations as requiring special precautions such as placards and manifests.

Exposed – contact with chemical, physical, biological agents or other health risks occurring in their environments.

Education – the delivery of general information to workers.

Hazardous Product – means any product, mixture, material or substance that is classified in accordance with the *Hazardous Products Act* made under subsection 15(1) in a category or subcategory of a hazard class listed in Schedule 2. For the purpose of this standard, hazardous products include but are not limited to chemical and biological substances.

Hazardous Waste – a hazardous product that is intended for disposal or is acquired or generated for recycling or recovery.

Manufactured Article – an article that is formed to a specific shape or design during manufacture, the intended use of which when in the form is dependent, in whole or in part, on its shape or design, and that under normal conditions of use, will not release or otherwise cause a person to be exposed to a hazardous product.

Readily Available – means present in an appropriate place in the form of a physical or electronic copy that can be accessible to a worker.

Safety Data Sheet (SDS) – means a document that contains, under the headings that, by virtue of the *Hazardous Products Act* and *Regulations* made under subsection 15(1), are required to appear in the document, information about the hazardous product, including information related to the hazards associated with any use, handling or storage of the hazardous product in a workplace.

Significant New Data – means new data regarding the hazard presented by a hazardous product that: changes the product classification in a category or subcategory of a hazard class; changes the product's hazards class; or changes the ways to protect against the hazard presented by the hazardous product.

Supplier – a manufacturer, importer or distributor of a hazardous product.

Supplier Label – a label provided by a supplier that contains the information elements required by Part 3 of the Hazardous Products Regulations.

Training – the delivery of worksite and job-specific information to workers.

Workplace Hazardous Material Information System (WHMIS) – a Canada-wide system developed to inform workers about the safe use of hazardous materials in the workplace. It is Canada's national hazard communication standard for hazardous products used in the workplace.

Workplace Label – a legible label that contains a product identifier that is identical to its SDS, information for safe handling of the hazardous product, including signal words and hazard statements, and that an SDS is available.

4 REQUIREMENTS

4.1 GENERAL REQUIREMENTS

All practical steps shall be taken to minimize impact on the environment and prevent worker exposure to chemical and biological substances that may be hazardous or harmful to the health or safety of a worker.

A **list of chemical and biological substances** shall be developed and maintained in consultation with an Occupational Health Committee with priority given to bulk and frequently used hazardous products. These lists may be included as part of department chemical inventory lists.

Where applicable, work procedures and processes shall be developed and implemented that are as safe as reasonably practicable for the handling, use, storage, production and disposal of chemical substances and biological substances.

Spills, leaks and/or exposures shall be reported and investigated according to the SaskPower Incident Investigation Process and applicable Incident Reference Chart.

4.2 IDENTIFICATION OF HAZARDS AND CONTROL MEASURES

4.2.1 HAZARD/ASPECT & RISK ASSESSMENT

A documented Hazard/Aspect and Risk Assessment (HARA) shall be completed to identify hazardous products and waste that workers may handle, use, store, dispose of and/or be exposed to.

The following should be considered when conducting a chemical and biological substances hazard/aspect and risk assessment:

- Burns
- Chemical/Toxic Reactions
- Explosions - compressed gases, liquids, reactive substances
- Infections
- Spills/Releases
- Fire - Flammable and combustible products or vapours
- Sensitization – skin or respiratory allergies or other sensitivity

4.2.2 CONTROL MEASURES

4.2.2.1 GENERAL

Where practicable, appropriate controls shall be implemented to eliminate or minimize chemical and biological exposure and release to the environment, which include, but are not limited to:

- Substitution to a less hazardous substance;
- Addition of appropriate engineering controls to ensure that contamination limits set out in Table 18 in *The Occupational Health & Safety Regulations* are not exceeded;
- Proper and prompt disposal of hazardous waste or of products no longer used;
- Measures to eliminate sources of ignition to within a safe distance from flammable and combustible liquids and vapours;
- Measures to minimize, and where possible eliminate, the release of vapours, including sealed containment and appropriate exhaust and ventilation systems;
- Strict adherence to safety and environmental storage requirements;
- Strict adherence to grounding and bonding requirements;

- Current emergency preparedness and response plans and procedures, equipment, training, and response drills appropriate for the situation;
- Regular inspection and maintenance of relevant tools, equipment, tanks, containment, controls, and electrical installations in hazardous locations; and
- Compliance with all Fire Codes, related standards, and other legal requirements.

4.2.2.2 PERSONAL PROTECTIVE EQUIPMENT

Workers handling chemical and biological substances, including waste, shall wear the appropriate personal protective equipment.

As in all situations where a chemical or biological hazard may be encountered, the safety data sheet is to be consulted; this will contain sections to address the hazards of the product as well as the recommended personal protective equipment.

Selection of chemical protective clothing shall be documented with respect to the above considerations. Refer to the applicable Chemical Protective Clothing Job Aid and/or local procedures for more information on selection and use.

4.2.2.3 EXPOSURE CONTROL PLAN

Where a worker may be exposed to, required to handle or must use a biological substance or infectious material or organism (*e.g.,* COVID-19, Hepatitis), the worker shall be provided with information regarding appropriate hazards and controls.

Where applicable and in consultation with an Occupational Health Committee, an exposure control plan shall be developed and implemented by the applicable Division with support from Health & Safety to eliminate or minimize worker exposure. Refer to section 6-22 in *The Occupational Health & Safety Regulations* for the specific requirements.

A copy of the exposure control plan and any amendment to that plan shall be readily available to every worker.

The Division, in consultation with the committee, shall review the adequacy of the exposure control plan and amend the plan if necessary, at least every two years or as necessary, to reflect advances in control measures, including engineering controls.

4.3 WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS)

Most chemical substances are classified as “hazardous products” under the *Hazardous Products Act* and therefore are subject to the *Hazardous Product Regulations and WHMIS Regulations*.

The *Hazardous Products Regulations* requires suppliers of hazardous products to communicate the hazards associated with their products via product labels and Safety Data Sheets (SDSs) as a condition of sale and importation for workplace use.

The *WHMIS Regulations* requires workplaces to develop and maintain a system to obtain and update the required hazard information (SDSs and labels) and use it to establish safe work procedures and worker training. The requirements applicable to SaskPower are as follows:

4.3.1 EXEMPTED HAZARDOUS PRODUCTS

Hazardous products that fall under other applicable Acts are exempt from WHMIS with respect to supplier labels and SDS. Products exempted include explosives, pesticides, radioactive material, consumer products, cosmetics, food & drug, and hazardous waste.

WHMIS requirements do not apply to wood and wood products, tobacco, manufactured articles, and products transported or handled pursuant to *The Transportation of Dangerous Good Act.*

4.3.2 LABELS

Hazardous products that are received and/or utilized at SaskPower shall have a label (supplier or workplace label) affixed to each container and are to remain legible and in good condition. If an applied label to a hazardous product or container becomes illegible or is accidentally removed, the label shall be replaced with either a supplier label or workplace label.

Up-to-date workplace labels are required for all decanted hazardous products or hazardous products missing labels. Workplace labels must include the name (product identifier) of the hazardous product, requirements for safe handling and reference to the SDS.

Bulk shipment of hazardous products contained in piping systems and vessels shall be identified through the use of colour coding, labels, placards or any other mode of identification where the chemical and biological substance is contained or transferred in/on.

4.3.3 SAFETY DATA SHEETS

Supplier SDSs shall be obtained for hazardous products that are to be used, stored, and/or handled in the workplace.

Where possible, out-of-date (more than 3-years old) SDSs for each hazardous product shall be replaced with current supplier SDSs. If a current supplier SDS is unobtainable,

the use of the product should be discontinued, but at a minimum, the use of the product without a current version of a SDS shall be reassessed to ensure all risks are identified and addressed.

Consumer products purchased from retail outlets in large quantities (*i.e.,* by the case) require an SDS.

Hazardous products produced in the workplace (does apply to fugitive emissions or products undergoing reactions within a vessel) are to comply with the *WHMIS Regulations*, which may include developing, updating and making **employer SDSs** readily available to workers.

SDSs are to be readily available and updated as soon as possible when significant new data becomes available.

SDSs received shall be reviewed, entered and updated where necessary in the **SDS database** as defined per divisional/site procedures.

4.4 EMERGENCY RESPONSE

Emergency shower and/or eyewash equipment shall be made available at all work locations where workers may be at risk of contamination from corrosive or other hazardous products. Refer to the Emergency Shower and Eyewash Station Standard for specific requirements.

Supervisors shall ensure workers who may use, store, handle, dispose and/or be exposed to hazardous substances are trained to respond to an emergency, as per the applicable emergency response plan(s).

4.5 STORAGE AND DISPOSAL

All chemical and biological substances, including waste in the workplace shall be stored and/or disposed of in accordance with provincial, federal and municipal regulations.

Appropriate volume and storage limits shall be considered. Where chemical and biological substances exceed maximum permissible storage quantities, they shall be stored in a self-contained enclosure (*e.g.,* fire cabinet), room (*e.g.,* fire compartment) or building in accordance with the National Fire Code and the *Hazardous Storage and Waste Dangerous Good Regulations* (HSWDG). Refer to the Flammable and Combustible Liquids Storage Cabinet Handbook and, if applicable, the HWSDG Permit for additional requirements.

Designated hazardous products storage areas shall have applicable access control with required information (*e.g.,* emergency contact number).

The designated storage areas shall be inspected and maintained properly, including maintaining the required secondary containment for biological/chemical substances storage.

4.6 HAZARDOUS PRODUCT ACQUISITION

Careful consideration must be given when selecting both consumer and hazardous products for use in the workplace. Additional controls (i.e., substitution, training, procedures, PPE etc.) may be required for the safe use, handling, storage and disposal depending upon the classification of the hazardous product.

The following should be determined and evaluated prior to acquiring product for the workplace:

- The associated hazard classes and categories;
- If the product is permitted to be used (not classified as a banned substance);
- If the product can be substituted with a less hazardous substance;
- If the amount of product used or stored can be reduced;
- How the product will be used in the workplace, where exposures to workers are expected and what controls may be required; and
- Potential to generate hazardous waste through application of the product and how waste will be managed.

Chemical and biological substances that are hazardous products shall have an SDS and label upon receipt. If the hazard information cannot be obtained for a hazardous product, the product must not be used until one is obtained.

4.7 EDUCATION & TRAINING

All workers who work with or may be exposed to hazardous products during the course of their work shall receive:

- **WHMIS education** that includes but is not limited to hazard classes, hazard symbols/pictograms, supplier and workplace labels and the SDSs of hazardous products and
- **Worksite and/or job-specific training** concerning the safe use, storage, handling and disposal of chemical and biological substances and their potential health effects. Workers shall be considered adequately trained when they are able to recognize:
    - The hazards of the products they work with or may be exposed to;

- Where applicable SDSs are stored in the workplace;
- How to protect themselves from those hazards;
- What to do in the event of an emergency or spill; and
- Where they can obtain more information on the product.

All workers who handle/receive, offer for transport or transport dangerous goods shall receive Transportation of Dangerous Goods **(TDG) Training** that meets the requirements set out by the *Transportation of Dangerous Goods Regulations*.

Additional education and/or training shall be provided to workers when work conditions change, and new substances are brought into the workplace, when hazard information changes or when new hazard information becomes available for a particular substance.

5 IMPLEMENTATION

The requirements of this version of the standard are to be met within six months of the approval date, at which time the previous version will be superseded.

6 RESOURCES

6.1 INTERNAL RESOURCES

Related Policies:	Hazard/Aspect Risk Assessment Policy SaskPower Health, Safety and Environment Policy Waste Management Policy
References:	Chemical Protective Clothing Job Aid Emergency Showers and Eye Wash Station Standard Flammable and Combustible Liquids Storage Cabinet Handbook Incident Investigation Process
Related Standards:	Emergency Response Plan Standard Hazard/Aspect Risk Assessment Standard Pesticide Standard
Additional Information:	Safety and Environment Rulebook Safe Work Practice: Access to Land with Potential Biological Hazards Safe Work Practice: Biosecurity for Personnel Entering Livestock Facilities Safe Work Practice: Cleaning Work Areas Contaminated with Biological Hazard SDS Software Work Practice: Field Entry During or After Pesticide Application

6.2 EXTERNAL RESOURCES

Related Legislation:	*Hazardous Products Act* *Hazardous Products Regulations* *Hazardous Materials Information Review Act* *Hazardous Materials Information Review Regulations* Saskatchewan Environmental Code Saskatchewan Fire Code

	The Hazardous Substances and Waste Dangerous Goods Regulations *The Saskatchewan Employment Act, 2014* The National Fire Code The National Building Code *The Occupational Health and Safety Regulations, 2020, Part 2-2,3(e), 3-20, 6-22, 21 & 22* *The Public Health Act, 1994* *The Transportation of Dangerous Goods Act* *Transportation of Dangerous Goods Regulations*
Related Standards:	ASTM F1461-12 CAN/CSA-B149.2-15 Propane Handling and Storage Code Chemical and Biological Substances Guide Relevant NFPA and CSA standards (Note: any standard required by a legal requirement such as the National Fire Code is a legal requirement; other reputable standards will likely be expected as best management practices by regulatory authorities).
Additional Information:	OHS Chemical and Biological Substances Guide

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