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Chemical Safety and Lifecycle Management

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GLOSSARY

Assessment/verification: any evaluation, audit, appraisal, surveillance or other review action, whether by internal or by oversight personnel, that reviews, inspects, tests, determines, and documents whether items, processes, or services meet specified requirements.

Chemical: any element, compound, or mixture of elements and compounds.

A substance that (1) possesses potentially hazardous properties (including, but not limited to, flammability, toxicity, corrosivity, reactivity, and instability); or (2) is included on any Federal, state, or local agency regulatory list; or (3) is associated with a Material Safety Data Sheet (MSDS) and is not an “Article” as defined in Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1200. For the purposes of this document, this definition also applies to chemical products (see definition below).

Chemical Product: a mixture of any combination of two or more chemicals that may or may not be the result, in whole or in part, of a chemical reaction, and that itself has hazardous properties. Chemical products have Material Safety Data Sheets (MSDs) associated with them and include materials such as paints, lubricants, cleaning agents, and fuels.

Chemical Hygiene Plan (or Program): a written program developed and implemented by the employer that sets forth procedures, equipment, personal protective equipment, and work practices that are capable of protecting employees from the health hazards presented by hazardous chemicals used in that particular workplace and that meets the requirements of 29 CFR 1910.1450, OSHA Standard for *Occupational Exposure to Hazardous Chemicals in Laboratories*.

Chemical Tracking: monitoring changes in chemical inventory over time, from acquisition to disposition, in order to keep the inventory up-to-date.

Chemical Safety and Lifecycle Management: a program that describes the management of chemicals from acquisition to disposition. Chemical safety describes the safe use and storage of chemicals. The hybrid term, Chemical Safety and Lifecycle Management, is meant to convey the concept of managing the lifecycle of chemicals with chemical safety in the context of Integrated Safety Management to ensure that all aspects of chemical safety and management are coordinated and addressed.

Class 4 Oxidizer: an oxidizer that will explosively decompose upon exposure to heat, shock, or contaminants.

Contractor: any person under contract (including subcontractors or suppliers) to DOE with the responsibility to perform activities or supply services or products.

Cryogenic Liquids: gases that are handled in liquid form at relatively low pressures and extremely low temperatures, usually below -130°F (-90°C).



Disposal: final placement or destruction of chemical, radioactive, or other wastes; surplus or banned pesticides or other chemicals; polluted soils; and drums containing hazardous materials from removal actions or accidental releases. Disposal may be accomplished through use of approved secure landfills, surface impoundments, land farming, deep-well injection, ocean dumping, or approved/compliant treatment methods.

Disposition: the process of reutilizing, transferring, donating, selling, abandoning, destroying, or other discarding of chemicals and chemical products.

Environment: the combination of external physical condition including water, air, and land and the interrelationship that exists among and between water, air, and land and all living things.

Environmental Management System: a systematic and structured approach for addressing the environmental consequences of an organization's activities, products and services, using a continuous cycle of planning, implementing, evaluating, and improving processes and actions undertaken to achieve environmental goals.

Explosive: a chemical that causes a sudden, almost instantaneous release of pressure, gas and heat when subjected to sudden shock, pressure, or high temperature.

Flammable Liquids: liquids having a flashpoint less than 100°F; includes Class 1A, Class 1B, and Class 1C flammable liquids, per National Fire Protection Association 30 classification.

Hazard: a source of danger (i.e., material, energy source, or operation) with the potential to cause illness, injury, or death to personnel or damage to a facility or to the environment (without regard to the likelihood or credibility of accident scenarios or consequence mitigation).

Hazard Analysis: the determination of material, system, process, and plant characteristics that can produce undesirable consequences, followed by the assessment of hazardous situations associated with a process or activity. Largely qualitative techniques are used to pinpoint facility design or operational weaknesses that could lead to accidents.

Hazard Communication Standard: regulation issued by OSHA to protect employees from chemical-related hazards at workplace (29 CFR 1910.1200) and in the construction industry (29 CFR 1926.59)

Hazard Control: the management action or physical measure taken to eliminate, limit, or mitigate hazards to workers, the public, or the environment, including (1) physical, design, structural, and engineering features; (2) safety programs and procedures; (3) personal protective equipment; and (4) administrative limits or operational restrictions.

Hazardous Chemical: any chemical (see definition) that presents a physical or health hazard. Also, a substance that possesses potentially hazardous properties including, but not limited to, flammability, toxicity, corrosivity, reactivity, and instability.



Hazardous Materials Regulations: Department of Transportation (DOT) Title 49 Code of Federal Regulations (CFR) Parts 171-180.

Integrated Safety Management Core Functions: the core safety management functions identified in DOE P 450.4, *Safety Management System Policy*: (1) define the scope of work; (2) analyze the hazards; (3) develop and implement hazard controls; (4) perform work within controls; and (5) provide feedback and continuous improvement. These functions are also identified in Department of Energy Acquisition Regulations 48 CFR 970.5204-2(c).

Integrated Safety Management System: a safety management system to systematically integrate safety into management and work practices at all levels as required by DOE P 450.4, *Safety Management System Policy*, and other related Orders and Policies (such as DOE O 226.1 and DOE P 450.7).

Material Safety Data Sheet: a document prepared by the manufacturer, in accordance with the requirements specified in the OSHA Hazard Communication Standard (29 CFR 1910.1200), for a chemical product containing a hazardous chemical. Although a manufacturer may provide an MSDS for a chemical, the issuance of that MSDS does not necessarily indicate that the material is hazardous. Some manufacturers develop MSDSs for all their chemicals, whether or not the material is hazardous.

On-site: any area within the boundaries of a DOE site or facility to which access is controlled. [NOTE: If hazardous chemicals are transported over a public road that is on-site, DOT Hazardous Materials Transportation Regulations must be adhered to.]

Oxidizer: as per 29 CFR 1910.1200, a chemical other than a blasting agent or explosive as defined in 29 CFR 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Ozone Depleting Substance (ODS): Public Law 101-549, the Clean Air Act Amendments of 1990, identifies those chemicals whose use is primarily responsible for depletion of the earth's ozone layer. ODS chemicals are also designated in the 1989 *Montreal Protocol on Substances that Deplete the Ozone Layer*.

Pollution Prevention: source reduction including segregation and substitution, and other practices such as recycling that reduce or eliminate the creation of pollutants or the release of pollutants into the environment.

Pyrophoric: a material that can self-ignite in air at or below 130°F (54.4°C).

Reportable Quantity (RQ): the quantity established in Table 302.4 of 40 CFR Part 302 (Designation, reportable quantities, and notification) for CERCLA-regulated hazardous substances, the non-permitted release of which requires notification of the National Response Center.



Shelf Life: the length of time an age-sensitive chemical can be stored under prescribed conditions, without suffering a marked degradation in its properties, such that it will still function as originally intended when put into service.

Special Hazard Chemicals: Examples include time-sensitive chemicals such as peroxide-formers, which become hazardous upon prolonged storage, and high-hazard chemicals, including high acute-toxicity chemicals, NFPA Class 4 oxidizers (see NFPA 430), pyrophorics, and unstable/reactive chemicals, such as shock-sensitive substances, explosives, certain organic peroxides, and self-reactive monomers. Refer to DOE Chemical Management Handbook, Volume 1, Appendix D for lifecycle management of shock-sensitive chemicals.

Storage: the management of chemicals set aside for future use or safekeeping. Also refers to an inventory of compressed or liquefied gases in containers that are not in the process of being used, examined, serviced, refilled, loaded, or unloaded.

Threshold Planning Quantity (TPQ): the minimum amount of a substance present at a site at which notification is required under 40 CFR 355, *Emergency Planning and Notification*. TPQs are listed in Appendices A and B of that regulation

Unstable/Reactive Chemical: a chemical that in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, become self-reactive, or otherwise undergo a violent chemical change under conditions of shock, pressure, or temperature. Examples include explosives, reactive monomers, and peroxide formers that produce unstable, highly friction-sensitive or shock-sensitive peroxides.

Water-Reactive Material: a substance that will spontaneously react with water to release toxic gases, flammable gases, or amounts of heat that could become significant (e.g., resulting in splattering, pressure-volume explosions). It includes those materials that can form explosive mixtures with water.



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