

Industrial Hygiene

I PURPOSE

To establish minimum standards for Industrial Hygiene hazards and associated risks are communicated, anticipated, identified, evaluated and controlled.

2 SCOPE

This procedure applies to all functional areas, operations, offices, including employees, vendors, visitors and contractors within the scope of the Integrated Management System (IMS).

3 DEFINITIONS AND ACRONYMS

Definitions

ACGIH is the American Conference of Governmental Industrial Hygienists. An occupational health organization that annually publishes a list of recommended occupational exposure limits (TLVs and BEIs) for a variety of chemical and physical hazards.

Administrative Controls are methods of controlling worker exposures by rotation, work assignment, time periods away from the hazard, or training in specific work practices designed to reduce exposure.

Biological Monitoring is samples of blood, urine breath, or other bodily fluids to assess overall exposure to chemicals and other materials in the workplace.

Engineering Controls are methods of controlling a workers hazardous exposure by eliminating the hazard, substituting a less hazardous material, isolation or enclosure, insulating the source or reducing the quantity of contaminants released into the work environment through a suitable ventilation system, etc.

Health Hazards are conditions or materials that could, under certain conditions, cause illness or injury. These include the exposure levels determined in the baseline evaluation; chemical hazards, such as silica dust, process chemicals, of process byproducts; physical hazards, such as noise, ionizing radiation, thermal stress, or ergonomic stress; and biological hazards, such as blood borne pathogens, or insect and rodent-borne pathogens (Hantavirus).

Acronyms

ACGIH	American Society for Testing and Materials
ASTM	American Society for Testing and Materials
BEI	Biological Exposure Indices
HSLP	Health, Safety and Loss Prevention
IH	Industrial Hygiene
JCS	Integrated Management System

MSDS	American National Standards Institute
MSHA	American Society for Testing and Materials
OH	Occupational Health
SEG	Similar Exposure Group
SOPs	Standard Operating Procedures
TLV	Threshold Limit Value

4 ROLES AND RESPONSIBILITIES

Document Owner

HMR

Responsible Roles and Position-Holders

HSLP – Industrial Hygiene ensures that Job Capability Studies are used for all occupations and are updated on a periodic basis or whenever a change to occupation or job is made. These Job Capability Studies will identify and evaluate chemical physical, biological and ergonomic hazards which exist within the COMPANY. They manage quality and content of employee health hazard training programs, otherwise known as Hazard Communication (Hazcom) and ensure Hazcom training is included in both the general induction program and Annual Refresher Training programs. A program including a schedule for sampling of hazards identified at each location within the COMPANY will be assured including the analyses and interpretations of the monitoring performed. Management will be informed of the results in a timely manner. Systems and procedures will exist for maintaining and calibrating Industrial Hygiene Equipment. The Information Management requirements in this document shall be followed. SOPs will be developed and utilized as necessary for better job results and appropriate and effective information will be distributed to the stakeholders.

The Supervisor/Foreman will ensure employees attend New Hire and Annual Refresher Training programs in which Health Hazards training is offered. They will support the IH group by participating in interviews as necessary when Qualitative Assessments and/or Job Capability Studies are being applied in their areas. They will allow Industrial Hygiene monitoring to be performed according to the sampling schedule established for each area and request sampling as necessary in the work area for any special surveys, even if this is not considered in the monitoring program established by Industrial Hygiene.

5 DIRECTION

All employees, vendors, contractors on site shall comply with and ensure personnel accountability to comply with the following Industrial Hygiene requirements of this procedure.

Information Administration

Industrial Hygiene documents will be managed as controlled documents.

Industrial Hygiene monitoring results and reports shall be put in electronic files.

The IT department backs up files on the network on a daily basis.

Industrial Hygiene sample results will be kept tracked in a software system.

A hard copy of Industrial Hygiene monitoring results and reports shall be kept on file in the Industrial Hygiene Department.

All reports will be attached to the corresponding sampling results.

Instrumentation Inspection and Calibration

Inspection and testing of critical instrumentation shall be in accordance with a controlled schedule as defined in the Industrial Hygiene Management procedures.

All operations within the COMPANY shall have adequate industrial hygiene monitoring equipment available to enable proper monitoring of health hazards at the site.

Equipment shall be inspected and calibrated at intervals in accordance with manufacturers' recommended guidelines.

Following inspection, testing and calibration, instruments and controllers shall be tagged to indicate it has been properly calibrated and the next calibration due date.

Job Capability Studies

Job Capability Studies shall be used to identify chemical, physical, biological and other health hazards associated with a specified job. In addition, Job Capability Studies shall be conducted during the planning stages of new projects or changes to current projects, to ensure that potential health hazards (chemical, physical, biological and ergonomic) are adequately recognized and controlled.

Industrial Hygiene personnel shall carry out the Job Capability Studies; as necessary the supervisor for the area will participate.

Job Capability Studies shall involve information from such sources as employee and management interviews, MSDS sheets, lists of hazardous substances on site, area evaluations, etc.

Health hazards identified shall be evaluated using both qualitative and quantitative methods.

ACGIH and/or MSHA criteria shall be used when evaluating health exposures.

Following the identification of health risks, controls shall be implemented with priority given to engineering (elimination, isolation, separation, etc.), followed by administrative and finally Personal Protective Equipment as means for controlling hazards.

Monitoring Programs

IH personnel shall develop an annual IH monitoring plan which addresses the health hazards identified in the Job Capability Study.

A Qualitative Assessment will be performed for all SEG's. The assessment is used to determine the sampling frequency and sampling size for a given contaminant.

The Sampling Plans will be monitored monthly by the IH Department and the IH/OH Regional Senior Manager to ensure compliance to requirements and identify any need for changes.

When MSHA or any other regulatory agency is on COMPANY property conducting sampling of any type the Industrial Hygiene Department will ensure that side by side sampling is conducted.

Monitoring will be carried out by IH personnel and shall encompass:

- **Exposure Monitoring:** Exposure monitoring shall be conducted using scientifically valid methods and properly calibrated equipment.
- **Biological Monitoring and Medical Surveillance:** Biological monitoring shall be conducted when valid methods are available; skin absorption or ingestion can be major routes of exposure and the SEG can be exposed to the TLV action level (i.e. $\frac{1}{2}$ the TLV) for 30 days or more in a year; or specified in a procedure that the given SEG will be tested; or past exposures have not been adequately evaluated and may lead to future health effects; or biological monitoring/medical surveillance provides a valuable supplement to other types of exposure monitoring.

Frequency of monitoring is based on 6 criterion:

- 1 The exposure level determined in the baseline evaluation, exposure history.
- 2 The potential health effects of overexposure (i.e. toxicity of the contaminant).
- 3 The frequency in which a SEG is exposed to the contaminant.
- 4 The duration of use.
- 5 The controls currently in place to minimize exposure.
- 6 The number of individuals within the SEG (i.e. number of individuals at risk).