



# CHEMICAL EXPOSURE MONITORING (CEM)

## Routes of Monitoring

 An employer shall ensure that the exposure of any person to any chemical hazardous to health does not exceed the permissible exposure limit as listed in the USECHH Regulation 2000.

 When to carry chemical exposure monitoring?  
- When an assessment of risk to health (CHRA) indicates that CEM is required to do so. CEM is conducted by a registered Hygiene Tech 1.

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### Preliminary visit

Collecting information through:

- Interview the worker
- Site observation
- Review documents



### Identification of chemicals/contaminants

By chemical properties :

- Organic
- Inorganic

By physical characteristics :

- Solid & liquid
- Gas & vapour
- Particulates (Fume, Mist, Dust)

By usage :

- Solvents
- Metals
- Acids
- Bases
- Pesticides



### Refer to Niosh Method

Select the correct sampling method considering :

- Availability of collection media
- Availability of analytical method
- Method of transportation



### Conduct monitoring

Pre-calibration of instrument and sampling media

- Assembly of collection media
- Selection of the correct calibrator
- Correct set up to perform calibration
- Perform the calibration

Monitoring activity

- Correct assembly of the equipment
- Measurement of temperature, humidity and air velocity
- Labeling & sealing

Post-calibration

- As per pre-calibration set up
- Reject sample if the error >10%.

### Send samples to accredited laboratory

Common analytical method used :

- Gravimetric method
- Gas chromatography
- Ion chromatography
- Atomic Absorption Spectrophotometry
- Fibre counting using Phase Contrast microscopy
- X-ray Diffraction (XRD)



### Prepare report

- Calculation
- Conclusion
- Submission

