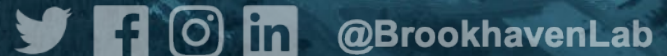




# TAKE FIVE for Safety- Work Planning for Inhalation Hazards

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# Last Week...

- Repair work identified the need to use ~ ½ gallon of enamel paint.
- Review of Safety Data Sheet for paint showed the product contained about 50% VOCs
- We asked: what safety controls are required?

# Potentially Applicable Standards

- OSHA “Permissible Exposure Limit” (PELs) Standards
- ACGIH “Threshold Limit Values” (TLVs)
  - According to ACGIH, TLVs are “guidelines to assist in the control of health hazards” and “represent conditions under which ACGIH believes that nearly all workers may be repeatedly exposed without adverse health effects.
  - 10CFR851 (DOE Worker Safety and Health Program) incorporates the TLVs by reference, making them regulatory requirements in this case.

# Safety Data Sheet Exposure Control/Personal Protection

Chemical Name	OSHA Exposure Limits	ACGIH Exposure Limits
Xylene (mixed isomers)	PEL 100 ppm-TWA PEL 150 ppm STEL	TLV 100 ppm TWA TLV 150 ppm STEL
Aliphatic Petroleum Distillates	TWA 500 ppm TWA 400 ppm	TWA 300 ppm
Ethyl Benzene	STEL- 125 ppm TWA- 100 ppm	STEL 125 ppm TWA 20 ppm TLV

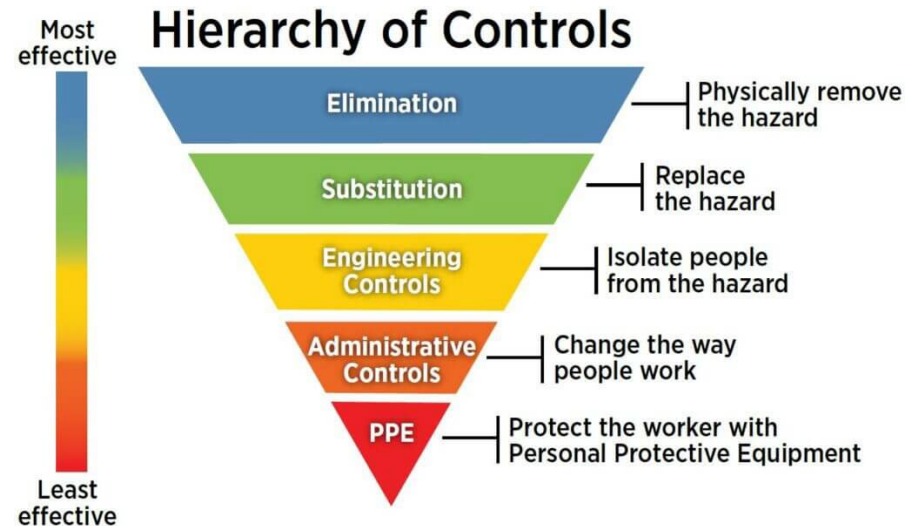
**Engineering Controls:** Provide general dilution of local exhaust ventilation in volume and pattern to keep concentration of ingredients listed below the lowest suggested exposure limit, the LEL below the stated limit, and to remove decomposition products during welding or flame cutting.

# Statements in Safety Data Sheet regarding respiratory protection

- Respiratory protection may not be needed if the local exhaust is sufficient to maintain levels of hazardous ingredients below occupational exposure limits.
- Where ventilation is inadequate, use a NIOSH/MSHA-approved, air-purifying respirator equipped with the appropriate chemical cartridges or positive-pressure, air-supplied respirator.
  - Read the respirator manufacturer's instructions and literature carefully to determine the type of airborne contaminants against which the respirator is effective, its limitations, and how it is to be properly fitted and used .

# Planning Work

- WCCs work with ESH to review inhalation hazards.
- First consider “Most effective” controls.
- Note that PPE is least effective control;
- Respirator Use
  - Requires training, medical evaluation, and fit testing.
  - Requires proper selection.
  - Can be detrimental to user.
- Primary goal to ensure compliance and secondary goal to optimize the choice of controls.



Source: NIOSH



# What we did

- Choice was made to use respiratory protection, with monitoring of workers;
  - Quick analysis of ventilation was inconclusive;
  - Data received from monitoring might be useful for planning future work with this material.
  - A layer of protection for the worker was provided by the respirator use.