UNDERSTANDING THE DIFFERENCE BETWEEN TLV'S AND OCCUPATIONAL EXPOSURE STANDARDS

Analysis and Summary for the Practicing Industrial Hygienist

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It Can Be Confusing:

- TLV
- MAC
- PEL
- REL
- WEEL
- WTF

NOTICE

Asking me to overlook a simple safety violation would be asking me to compromise my entire attitude toward the value of your life.
With “Global Harmonization” these are issues of international consequence

Many questions raised:

- How are the limits developed?
- How are they reviewed and modified?
- Who has input?
- How are they applied in practice?
- Are they measureable, achievable, enforceable?
- Are they truly protective and effective in the promotion of greater occupational health?
Let’s Examine a Bold Contrast with a Current High-Profile Example - Manganese

- TLV
- PEL

Threshold Limit Values (TLV)- American Conference of Governmental Industrial Hygienists (ACGIH)

- First Nationally-recognized limits in US, since 1940's
- Adopted as first OSHA limits in 1970
- Advisory guidelines prepared by small committee of volunteers
- Restricted Participation, Selective Input, Authors Not Disclosed
- Largely academic participation from Universities
- Position and Policy Statements Are Clear - Not developed as enforceable standards
Permissible Exposure Limits (PEL) – Occupational Safety and Health Administration (OSHA)

- Required by law in Section 6 of the Occupational Safety and Health Act
- Enforceable, with defined penalties just like speed limits.
- Due process with open hearings, disclosure and negotiated rulemaking
- Dedicated staffing for Health Standards with annual budget (OSHA & NIOSH) over $1B
- Allows for Temporary Emergency Standards if imminent danger is known
- Extremely political with factors beyond safe limits of exposure considered

What’s the Problem?

- PEL’s and TLV’s often used interchangeably in rules, procedures, contracts and claims
- Derivation and application not conforming to stated objectives
- Practitioners uncertainty as to which exposure limit to use and too often poorly equipped to explain these differences
2013 TLV for Mn

MANGANESE, ELEMENTAL AND INORGANIC COMPOUNDS
CAS number: 7439-96-5 (Manganese)
Molecular formula: Mn
TLV-TWA  0.02mg/m³, as Mn, Respirable particulate matter
0.1mg/m³, as Mn, Inhalable particulate matter

• Since 1970 TLV for Mn has changed 12 Times !
• OSHA PEL for Mn = 5.0mg/m³ Ceiling
• There is a 250X difference between these OELS
• Which exposure limit do you use? Is there an industry standard you should be aware of?

High Profile in The Synergist, August – December 2013
Different Responses but Shared Goals
Use the best available information for occupational health
Six Questions to Explore the 2013 Mn TLV

• Is this new standard the law?
• Does this TLV represent the consensus of the industrial hygiene profession?
• Does the TLV Documentation provide a complete and balanced summary of the information known and available on this topic?
• Does the TLV define air sampling methods to measure compliance?
• Did the TLV Committee conduct new research to determine how this limit may be achieved?
• Since the OSHA PEL for Mn is over 40 years old, isn't the new TLV automatically better and more protective?

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All stakeholders (including OSHA) admit at some level that the process for establishing/re-establishing PELs is broken.

So, in 2014 OSHA announced a Request for Information specifically soliciting options for how to improve Chemical Management and Permissible Exposure Limits (PELs)

Where do we go from here?
Some Plausible Options

• Streamline the current PEL promulgation process by minimizing industry politics, using already existing study results and minimizing bureaucracy

• Achieve consensus and start to adopt already established State PELs for those thousands of chemicals lacking a PEL

• Enforce chemical exposure through the General Duty Clause citing already established industry standards and best practices

• Enforce chemical exposure through the implementation of Control Banding

If a PEL doesn’t exist, what’s an Industrial Hygienist to do?

• ALARA – exhaust all feasible controls to reduce exposures as low as reasonably achievable

• PELs are an enforceable exposure limit but, industrial hygienists should always strive to control exposure levels below the PEL

• Use Industry standards & best practices as a reference

• Professional Judgement
SUMMARY

• Bold Differences Between TLVs and PELs – Each Has a Role
• If you can reduce exposures now - Do It
• This is Not a Criticism – It's a Disclosure
• PELs are just one of many references at the disposal of a CIH
• Dig In – Learn More