



## Managing the Complexities of Global Occupational Exposure Limits with a Central EHSQ System

Erin Snyder, CIH, Senior Presales Engineer, Cority

Alan Johnson, Director of Strategic Alliances,  
Verisk 3E

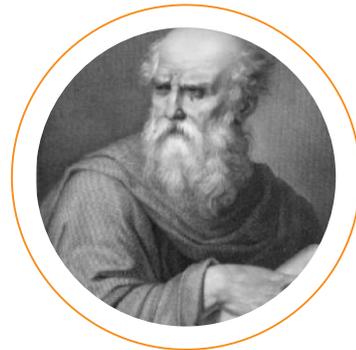
# Exposure Limits

A brief history...



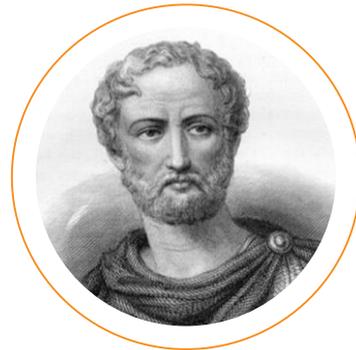
# A Storied History

Major occupational chemical exposure problems known for almost 2,000 years!



90-20 B.C.

Roman Architect/Engineer 'Marcus Vitruvius Pollio' noted lead workers had pale grey complexions



23-79 A.D.

Roman 'Pliny the Elder' describes workers use of sheep bladders as masks to protect from mercury dust

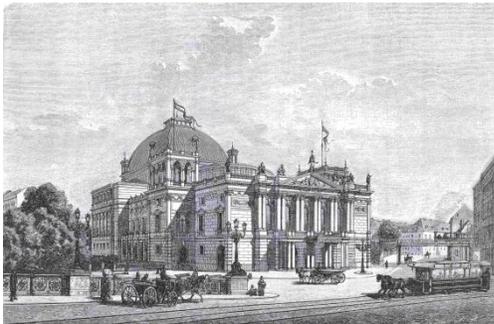


1556

German Mineralogist 'Georgius Agricola' first warned of "black lung" in miners

# The Last 100-150 Years

The last 100-150 years have seen further identification and regulation of these hazards.



In 1880s Europe started the cultural shift with Austrian Scientist *Max Von Gruber* creating an OEL for Carbon Monoxide.



In 1918 Worker's Compensation denied an 18yr old painter compensation for exposure to deadly paint fumes and gases.

Lead poisoning was considered usual for painters.

# Modern Timeline of Exposure Limits

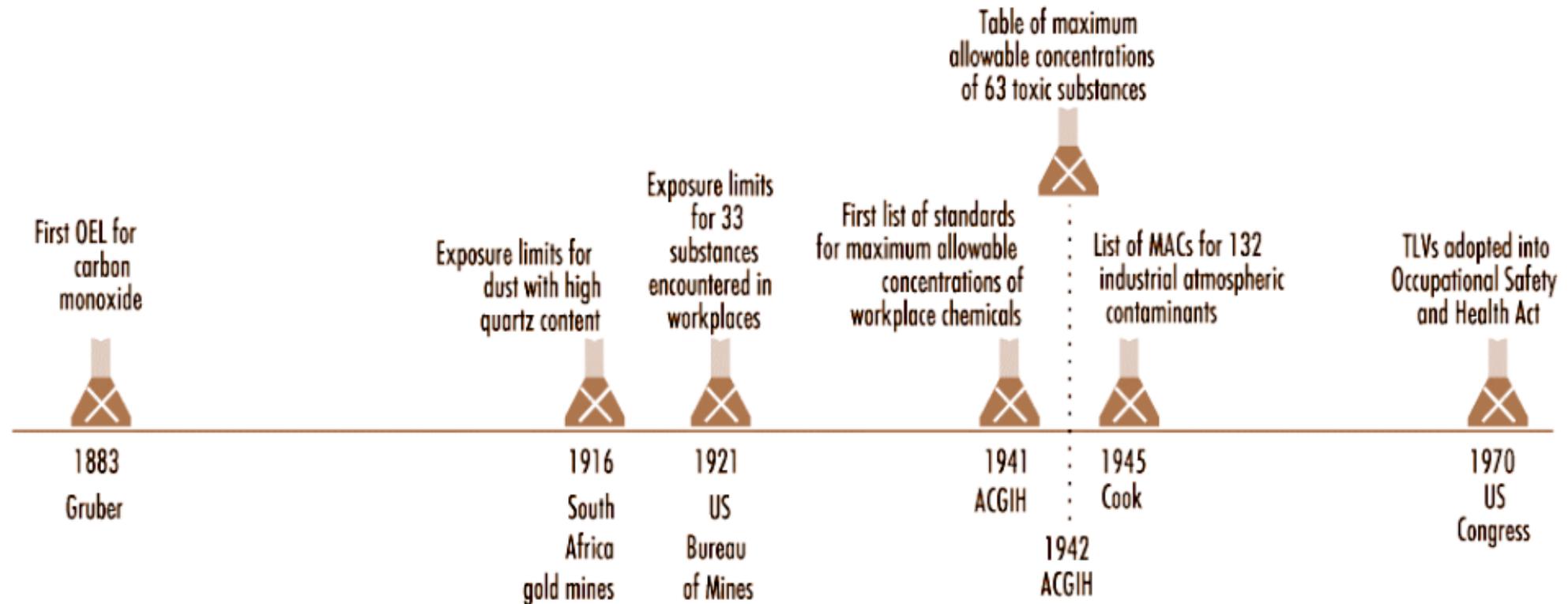
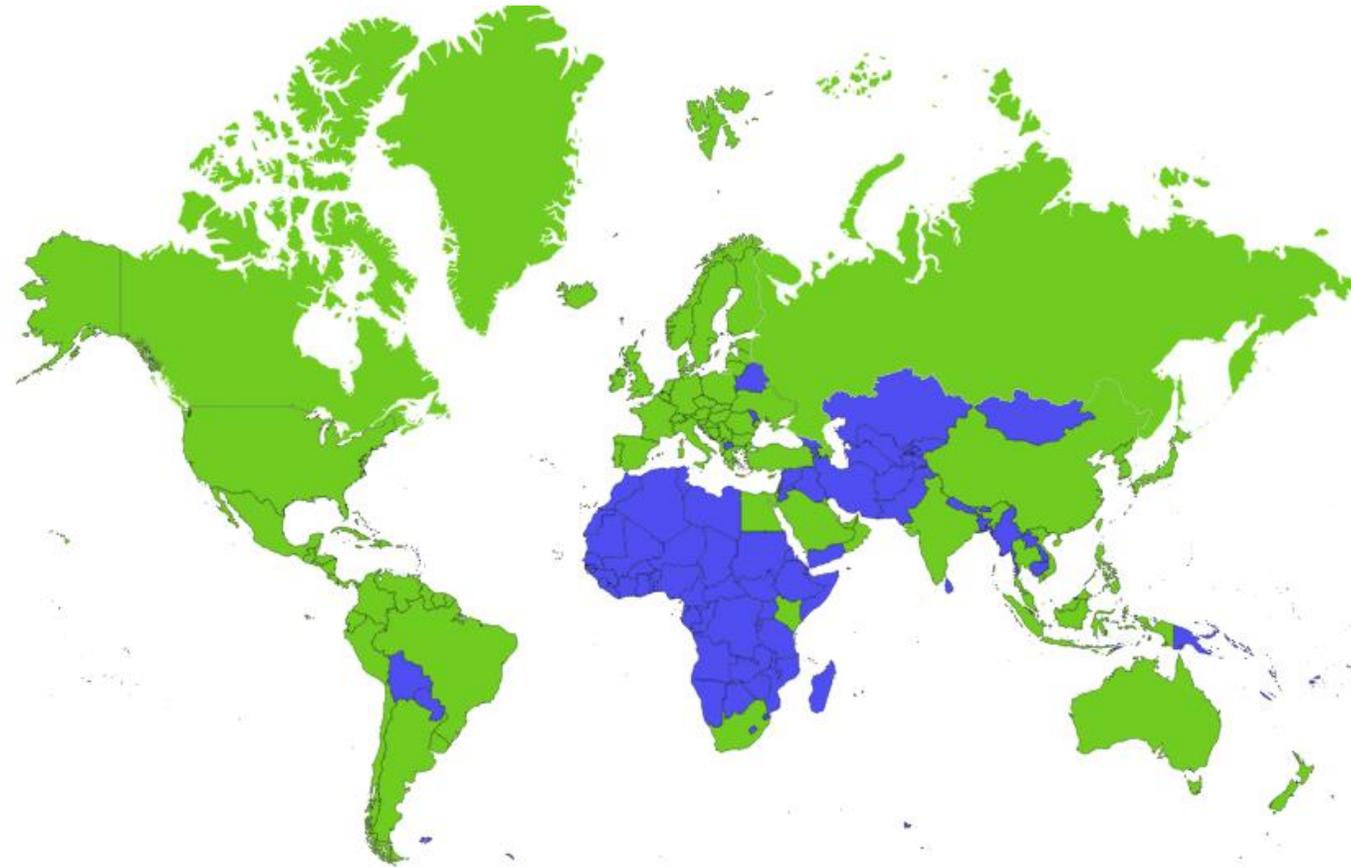


Photo Courtesy: Jim Kapin MPH, CIH Advanced Chemical Safety

Exposure Limits have now been set almost everywhere...



# Protecting Worker Health



- Safety Plans
- Risk Management
- Hazard Assessments
- Hazard Communication
- Emergency Planning
- Shipping/Handling Procedures
- Incident Tracking

\*There are many dangerous substances (most chemicals) for which there are no formal occupational exposure limits. In these cases, hazard banding or control banding strategies can be used to ensure safe handling without a complete risk assessment.

# Difficulties with Occupational Exposure Limits

Nobody wants to get hurt out of ignorance.



# Top Issues



- Global Markets:

- Companies
- Products
- Customers



- Variety of OELs (e.g. State vs. National)

- Organizationally
- Professionally
- Ethically

# Top Issues (Continued)



- Management of Change
  - New or Revised OEL
    - Beryllium Standard (Reduced PEL, New STE)
    - Traceability & Auditability
  - Standardization

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- Data Quality
  - Accuracy
  - Uniformity
    - PPM vs mg/m<sup>3</sup>
  - Digital updates

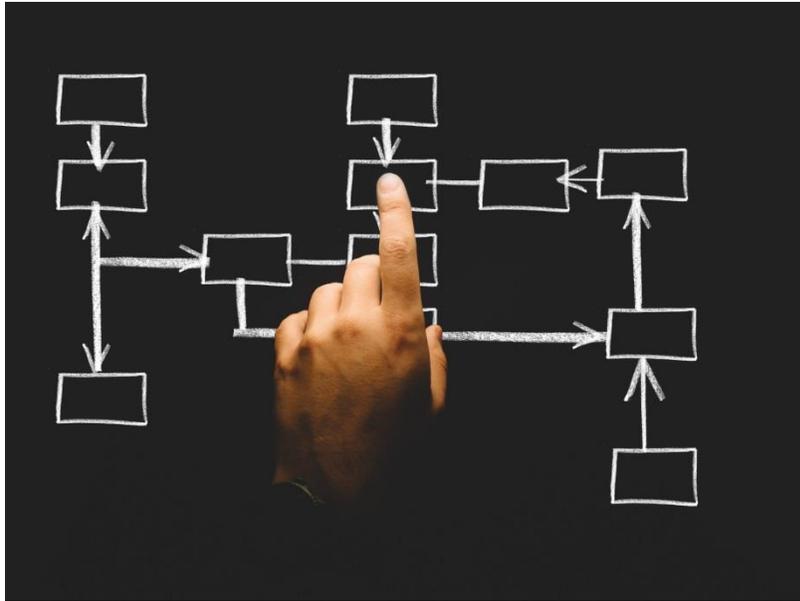


# Benefits of Central, Global OEL Management

Driving global compliance through harmony.

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## Key Benefits of Central, Global OEL Data - I



- Centralized Compliance
  - Common global safety information
  - Risk management measures
  - Clear emergency planning

## Key Benefits of Central, Global OEL Data - II



- Data Congruency
  - One source of trusted information
  - Central data with distributed access

## Key Benefits of Central, Global OEL Data -III



- Management of Change
  - New OELs
  - Updated OELs
  - Archives

# Manage OELs with Technology Solution



## Without Technology

Multiple, Unconnected Systems



Inefficient Hygiene Operations



Hard to Access / Communicate



Lack of Insight



Increased Security Concerns



## Software-Enabled Hygiene

All-in-One & Integrated Solution

Streamlined Processes and Workflows

Access/Communicate Anywhere & Anytime

Effective Reporting & Analytics

Secure & Compliant

## Technology-Enabled OELs: Risk Assessments & Sample Planning

- Conduct risk assessment to identify at-risk employees
- Create better sampling plans based on employees' exposure
- Access relevant OELs (company vs regulatory vs consensus body)

## Technology-Enabled OELs: Industrial Hygiene Sampling

- Automatic sample results calculations (ie time-weighted-average)
- Automatic comparisons to OELs (ie. Percent of limit (% OEL))
- Compare current vs historical OELs
- Brief & Scala OEL reduction tool to reduce OELs

## Technology-Enabled OELs: Corrective Actions & Communication

- Define sample findings for OELs
- Create corrective actions
- Automatic notifications through business rules
- Reassign employees to SEGs

## Technology-Enabled OELs: Reporting & Analysis

- Reporting by exposure
- Comparing different OELs (i.e. jurisdictions) to the same exposure
- Comparing current vs historical OELs
- Conducting Bayesian Decision Analysis

# Poll



How many sites or locations do you currently manage?

- A. Single site only
- B. 2-5
- C. 6-10
- D. 10+

Thank  
You!

