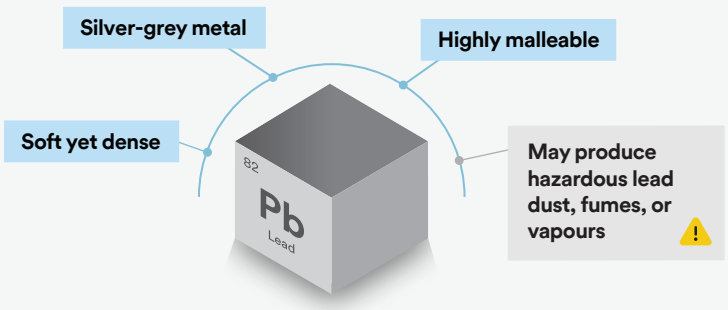
Science. Applied to Life.™

Know your hazard: Lead

What is lead?

Elemental lead is a soft and yet dense, silver-grey metal that is highly malleable. Inorganic lead and lead compounds are used extensively throughout industry. Industrial processes may generate **lead dust, fumes, or vapours**, which are hazardous to health.



Where is lead used?

Lead is utilised in metal production, metal fabrication and related applications, such as:

- Smelting, refining, alloying, and casting of lead and other metals
- Working with metallic lead and alloys containing lead
- Recovering and recycling lead from scrap and waste
- Painting of building and spray-painting of vehicles

Sources of exposure to lead

Workers are exposed to lead during the production and processing of elemental lead and its alloys. They can be affected by:

- Inhaling dust and fumes from the production of elemental lead and alloys.
- Welding, grinding, cutting, drilling, or polishing of alloys that contain lead.
- Inhaling metal particles and metal oxides created during "hot work" processes*.
- Handling or application of powered or liquid chemicals which contain lead.

Harmful effects of lead

Exposure to lead in the workplace can occur through inhalation and ingestion. The health effects may vary from acute to chronic:

Acute effects:

- Abdominal cramps and constipation
- Anorexia
- Muscle pain
- Weariness

Chronic exposure can cause:

- Anemia
- Central and peripheral nerve damage
- Altered mental state
- Gastrointestinal problems
- High blood pressure
- Kidney, liver, and lung diseases
- Impaired early foetal neurodevelopment
- Male fertility issues

*Lead and inorganic lead compounds are classified as probably carcinogenic to humans (Group 2A) by the IARC** and as confirmed animal carcinogens by the ACGIH**.*

How can one protect against it?

In order to reduce exposure and risks to workers, you can:

- Conduct risk assessment to compare exposure levels with limits.
- Implement engineering controls such as local exhaust ventilation (LEV).
- Get Respiratory Protective Equipment (RPE).

What RPE does 3M recommend for protection against lead?

3M has a range of RPE that can help reduce your exposure to dusts, mists, metal fume, as well as gases and vapours commonly encountered in metal production and fabrication.

Type of Respirators	Recommended 3M Respiratory Protective Equipment***		
Powered Air Respirator	 3M™ Versaflo™ Powered Air Turbo Starter Kit TR-619A	+  3M™ Versaflo™ M-Series Helmet with Comfort Faceseal, M-306	+  3M™ Versaflo™ Filter TR-6580ANZ, PAPR-A1B1E1HgP3 or High Efficiency Particle Filter PAPR-P3 TR-6710ANZ
Supplied Air Respirator	 3M™ Versaflo™ Vortex Cooling Assembly V-100	OR	 3M™ Versaflo™ Supplied Air Regulator, V-500E
Reusable Respirator	 3M™ Secure Click™ Full Facepiece Reusable Respirator FF-800 or Half Facepiece HF-800 Series	+	 3M™ Secure Click™ Particulate Filter D3138, P3R, with Nuisance Level Organic Vapour/Acid Gas Relief and Ozone
Disposable Respirator	 3M™ Aura™ Particulate Respirator 9322A+, P2		 3M™ Particulate Respirator 8214, N95, with Faceseal and Nuisance Level Organic Vapour Relief

*Hot work processes include cutting, grinding, and even polishing metals, which can create particles of metal and metal oxides that can be inhaled.
**The International Agency for Research on Cancer (IARC) and the American Conference of Governmental Industrial Hygienists (ACGIH) are organizations involved in cancer research and occupational health.
***This is only recommendation for minimum PPE required. Each work application must be evaluated by a competent person as required by local law and regulation for the hazard and risk before selection of right PPE. Workplace rules and regulations must take precedent, if more stringent.

REQUEST A DEMO
To know which respiratory protection is best suited for your work environment, scan the QR code.
AU and NZ

READ MORE
For more information on the hazard and product disclaimers, scan the QR code for the technical bulletin.
AU and NZ

EXPLORE MORE
To discover variety of respiratory protection equipment from 3M, for your workers, scan the QR code.
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