

MANGANESE FACT SHEET

North Carolina Division of Public Health • Occupational and Environmental Epidemiology Branch

Chemical Information

- Pure manganese is silver-colored, but does not occur naturally.
- Manganese dust is combustible.
- Occurs naturally in most foods
- Is an essential nutrient
- Used in steel production and as a gasoline additive, fungicides and welding

Regulatory Standards

- The Occupational Safety & Health Administration (OSHA) set the PEL for manganese exposures in the workplace at 5 mg/m^3 calculated as an 8 hour time-weighted average.¹
- The National Institute for Occupational Safety and Health (NIOSH) set the REL for manganese exposures in the workplace at 1 mg/m^3 calculated as a 10 hour time-weighted average.

Hazards Identification

Acute Exposure:

- Toxicity after acute exposures is rare, but may occur following ingestion of large amount of manganese compounds or from inhalation.
- Acute or intermediate exposures can result in respiratory, increased colds, bronchitis and nasal irritation.
- “Metal fume fever” can occur following exposure to manganese oxide fumes.
 - Commonly seen in welding practices

Chronic Exposure

- Exposure to manganese can result in behavioral changes, slowed and clumsy movements.
 - These symptoms can be classified as “manganism” when they are severe. These symptoms resemble a Parkinson’s-like condition.
- Nervousness, irritability and compulsive behaviors may develop after chronic inhalation of manganese dust.

Stability & Reactivity

- Will react with water to produce flammable hydrogen gas.
- Manganese powder and dust are flammable.

Handling & Storage

- Store in cool, dry, well-ventilated location.
- Separate from oxidizing materials.

Glossary

PEL - The Occupational Health and Safety Administration defines Permissible Exposure Levels (PELs) as threshold levels for the workplace that are applicable to exposure periods of eight hours.

REL - The National Institute for Occupational Safety and Health defines Recommended Exposure Limit (RELs) as threshold levels for the workplace that are applicable to exposure periods of up to 10 hours in a 40 hour workweek.

Time weighted average (TWA) - The maximum average exposure to a hazardous contaminant to which workers may be exposed without experiencing significant adverse health effects over said period.

