# NICKEL FACT SHEET

North Carolina Division of Public Health  
Occupational and Environmental Epidemiology Branch

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| **Nickel** is a hard, silvery-white metal | **Acute Exposures**  
  *Inhalation*  
  - Exposure to high concentrations of nickel may result in lung damage  
  - Individuals sensitized to nickel may have asthma attacks  
  **Dermal**  
  - Direct dermal contact can cause an allergic reaction to nickel, resulting in a skin rash at the site | **React**s with strong acids, sulfur, selenium, wood, and other combustibles to ignite.  
Dust can spontaneously ignite in the air |
| Odorless and tasteless  
Combustible as a fume or dust  
Can be combined with other metals such as iron, copper, chromium, and zinc to form alloys  
Used in the production of coins, jewelry, valves, and heat exchangers  
Used to make stainless steel | **Chronic Exposures**  
  *Inhalation*  
  - Chronic bronchitis and reduced lung function can occur in individuals exposed to high nickel concentrations over time  
  - Lung and nasal sinus cancers have occurred in those who breathe nickel dust at concentrations greater than 10 mg/m³ in the workplace  
  **Dermal**  
  - A person can become sensitized to nickel from direct and prolonged contact with the skin.  
    - 10-20% of the population is sensitive to nickel  
  - The International Agency for Research on Cancer (IARC) has classified nickel as a Group 2, B possible carcinogen  
    - IARC classifies nickel compounds as Group 1, known carcinogens | **Handling & Storage**  
Should be kept in an explosion proof container within a refrigerator or freezer.  
Should be handled in a closed environment to mitigate the potential for exposure because nickel compounds are considered carcinogens.  
  - Environment should be ventilated and particulates captured on a filter for proper disposal. |

**Regulatory Standards**  
The Occupational Safety & Health Administration (OSHA) set the PEL for nickel exposures in the workplace at 1.0 mg/m³ calculated as an 8-hour time-weighted average  
The National Institute for Occupational Safety and Health (NIOSH) set the REL for nickel exposures in the workplace at 0.015 mg/m³ calculated as a 10-hour time-weighted average
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 8 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 a day during 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.