

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control parameters

### Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup> respirable particulate matter all forms except graphite fibers	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic (vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> natural respirable dust
Barium sulfate 7727-43-7	TWA: 5 mg/m <sup>3</sup> inhalable particulate matter, particulate matter containing no asbestos and <1% crystalline silica	TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 10 mg/m <sup>3</sup> total dust (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction	TWA: 10 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable dust
Tin sulfide (SnS) 1314-95-0	TWA: 2 mg/m <sup>3</sup> Sn except Tin hydride	TWA: 2 mg/m <sup>3</sup> Sn except oxides (vacated) TWA: 2 mg/m <sup>3</sup> Sn except oxides	IDLH: 100 mg/m <sup>3</sup> Sn TWA: 2 mg/m <sup>3</sup> except Tin oxides Sn
Magnesium oxide 1309-48-4	TWA: 10 mg/m <sup>3</sup> inhalable particulate matter	TWA: 15 mg/m <sup>3</sup> fume, total particulate (vacated) TWA: 10 mg/m <sup>3</sup> total particulate	IDLH: 750 mg/m <sup>3</sup> fume
Tin oxide (SnO <sub>2</sub> ) 18282-10-5	TWA: 2 mg/m <sup>3</sup> Sn TWA: 2 mg/m <sup>3</sup> Sn except Tin hydride	TWA: 2 mg/m <sup>3</sup> Sn except oxides (vacated) TWA: 2 mg/m <sup>3</sup> Sn except oxides	IDLH: 100 mg/m <sup>3</sup> Sn TWA: 2 mg/m <sup>3</sup> Sn
Aluminum oxide 1344-28-1	TWA: 1 mg/m <sup>3</sup> respirable particulate matter	TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 10 mg/m <sup>3</sup> total dust (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction	-
Molybdenum (IV) sulfide 1317-33-5	TWA: 10 mg/m <sup>3</sup> Mo inhalable particulate matter TWA: 3 mg/m <sup>3</sup> Mo respirable particulate matter	TWA: 15 mg/m <sup>3</sup> total dust (vacated) TWA: 10 mg/m <sup>3</sup> Mo	IDLH: 5000 mg/m <sup>3</sup> Mo
Chromite ore 1308-31-2	-	TWA: 0.5 mg/m <sup>3</sup> Cr (vacated) TWA: 0.5 mg/m <sup>3</sup> Cr	IDLH: 25 mg/m <sup>3</sup> Cr(III) TWA: 0.5 mg/m <sup>3</sup> Cr
Kaolin 1332-58-7	TWA: 2 mg/m <sup>3</sup> particulate matter containing no asbestos and <1% crystalline silica, respirable fraction	TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 10 mg/m <sup>3</sup> total dust (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction	TWA: 10 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable dust
Manganese 7439-96-5	TWA: 0.02 mg/m <sup>3</sup> respirable particulate matter TWA: 0.1 mg/m <sup>3</sup> inhalable particulate matter	(vacated) TWA: 1 mg/m <sup>3</sup> fume (vacated) STEL: 3 mg/m <sup>3</sup> fume (vacated) Ceiling: 5 mg/m <sup>3</sup> Ceiling: 5 mg/m <sup>3</sup> fume	IDLH: 500 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup> fume STEL: 3 mg/m <sup>3</sup>
Quartz 14808-60-7	TWA: 0.025 mg/m <sup>3</sup> respirable particulate matter	30/(%SiO <sub>2</sub> +2) mg/m <sup>3</sup> TWA, Total Dust; 250/(%SiO <sub>2</sub> +5) mppcf TWA, respirable fraction; 10/(%SiO <sub>2</sub> +2) mg/m <sup>3</sup> TWA, respirable TWA: 0.1 mg/m <sup>3</sup> (vacated)	IDLH: 50 mg/m <sup>3</sup> respirable dust TWA: 0.05 mg/m <sup>3</sup> respirable dust

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. NIOSH IDLH: Immediately Dangerous to Life or Health.

### Appropriate engineering controls

### Engineering Measures

Showers  
Eyewash stations