

From NIOSH Pocket Guide to Chemical Hazards: <https://www.cdc.gov/niosh/npg/npgd0379.html>

## Manganese compounds and fume (as Mn)

### Synonyms & Trade Names

Colloidal manganese, Manganese-55, Manganese metal

CAS No. 7439-96-5 (metal)

RTECS No. [OO9275000 \(metal\)\(https://www.cdc.gov/niosh-rtecs/008D8678.html\)](https://www.cdc.gov/niosh-rtecs/008D8678.html)

Formula Mn (metal)

IDLH 500 mg/m<sup>3</sup> (as Mn)

See: [7439965\(https://www.cdc.gov/niosh/idlh/7439965.html\)](https://www.cdc.gov/niosh/idlh/7439965.html)

### Exposure Limits

#### NIOSH REL

TWA 1 mg/m<sup>3</sup> ST 3 mg/m<sup>3</sup> [\*Note: Also see specific listings for Manganese cyclopentadienyl tricarbonyl, Methyl cyclopentadienyl manganese tricarbonyl, and Manganese tetroxide.]

#### OSHA PEL

C 5 mg/m<sup>3</sup> [\*Note: Also see specific listings for Manganese cyclopentadienyl tricarbonyl and Methyl cyclopentadienyl manganese tricarbonyl.]

### Measurement Methods

NIOSH [7300\(https://www.cdc.gov/niosh/docs/2003-154/pdfs/7300.pdf\)](https://www.cdc.gov/niosh/docs/2003-154/pdfs/7300.pdf) ,

[7301\(https://www.cdc.gov/niosh/docs/2003-154/pdfs/7301.pdf\)](https://www.cdc.gov/niosh/docs/2003-154/pdfs/7301.pdf) ,

[7303\(https://www.cdc.gov/niosh/docs/2003-154/pdfs/7303.pdf\)](https://www.cdc.gov/niosh/docs/2003-154/pdfs/7303.pdf) ,

[9102\(https://www.cdc.gov/niosh/docs/2003-154/pdfs/9102.pdf\)](https://www.cdc.gov/niosh/docs/2003-154/pdfs/9102.pdf);

OSHA [ID121\(https://www.osha.gov/dts/sltc/methods/inorganic/id121/id121.html\)](https://www.osha.gov/dts/sltc/methods/inorganic/id121/id121.html) ,

[ID125G\(https://www.osha.gov/dts/sltc/methods/inorganic/id125g/id125g.html\)](https://www.osha.gov/dts/sltc/methods/inorganic/id125g/id125g.html)

See: [NMAM\(https://www.cdc.gov/niosh/docs/2003-154/\)](https://www.cdc.gov/niosh/docs/2003-154/) or

[OSHA Methods\(https://www.osha.gov/dts/sltc/methods/index.html\)](https://www.osha.gov/dts/sltc/methods/index.html)

## Physical Description

A lustrous, brittle, silvery solid.

**Molecular Weight** 54.9

**Boiling Point** 3564°F

**Melting Point** 2271°F

**Solubility** Insoluble

**Vapor Pressure** 0 mmHg (approx)

**Ionization Potential** NA

**Specific Gravity** 7.20 (metal)

**Flash Point** NA

**Upper Explosive Limit** NA

**Lower Explosive Limit** NA

**Metal:** Combustible Solid

**Incompatibilities & Reactivities** Oxidizers [Note: Will react with water or steam to produce hydrogen.]

**Exposure Routes** inhalation, ingestion

## Symptoms

Manganism (including: fixed gaze, tremors, body rigidity, and slowed movement); asthenia (debility, weakness); insomnia; mental confusion; metal fume fever (dry throat, cough, chest tightness; dyspnea (breathing difficulty); rales (abnormal crackling sound in the lung); flu-like fever; low-back pain; vomiting; malaise (vague feeling of discomfort); lassitude (listlessness, exhaustion); kidney damage

**Target Organs** respiratory system, central nervous system, blood, kidneys

### **Personal Protection/Sanitation**

**Skin:** No recommendation

**Eyes:** No recommendation

**Wash skin:** No recommendation

**Remove:** No recommendation

**Change:** No recommendation

**First Aid** ([See procedures](#))

**Breathing:** Respiratory support

**Swallow:** Medical attention immediately

### **Respirator Recommendations (NIOSH)**

#### **Up to 10 mg/m<sup>3</sup>:**

(APF = 10) Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100, P100.

(APF = 10) Any supplied-air respirator

#### **Up to 25 mg/m<sup>3</sup>:**

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

(APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter.

#### **Up to 50 mg/m<sup>3</sup>:**

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.

(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode

(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

#### **Up to 500 mg/m<sup>3</sup>:**

(APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

**Emergency or planned entry into unknown concentrations or IDLH conditions:**

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

**Escape:**

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.

Any appropriate escape-type, self-contained breathing apparatus

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More information on the selection of N, R, or P filters available at:

<https://www.cdc.gov/niosh/npg/pgintrod.html#nrp>

Additional information about respirator selection available at:

<https://www.cdc.gov/niosh/npg/pgintrod.html#mustread>