



Hdqtrs.: Rte. 114 & Chestnut St.  
No. Andover, MA 01845

Mail: P.O. Box 628  
Lawrence, MA 01842  
Tel. (508) 688-1811  
Telex 94-7460 Watts Reg Law

Manufacturers of Safety and Control Valves  
for Plumbing, Heating, Waterworks and Industrial Markets

(W)

**SUBJECT. Notification Requirement, S.A.R.A..Title III**

The purpose of this letter is to inform you that the valve(s) which we sell to you contain some of the listed toxic chemicals under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986. This law requires certain manufacturers to report on annual emissions of specified toxic chemicals and chemical categories.

Enclosed, please find a package of Material Safety Data Sheets (MSDS) of the metals which Watts Regulator Co. utilizes in the manufacture of various valves.

If you are unsure whether you must report, or if you require more information, call the EPA Emergency Planning and Community Right-To-Know Hotline: (800) 535-0202 or (202) 479-2449 (in Washington, D.C. or Alaska). Your other suppliers should also be notifying you if Section 313 chemicals are in the mixtures and trade name products they sell to you.

Please note that if you repackage or otherwise redistribute these products to industrial customers, a notice similar to this one should be sent to those customers.

Sincerely,

A handwritten signature in dark ink that reads 'John P. Twombly'.

John P. Twombly  
Director of Environmental  
Compliance

JPT/jb

*Over 110 Years of Leadership Since 1874*

Pressure and Temperature Relief Valves  Pressure Regulators  Backflow Preventers  Automatic Control Valves  Ball Valves  Butterfly Valves



# MATERIAL SAFETY DATA SHEET

Form W20

## 1. Product Identification

**Manufacturer's (Resellers) Name:** Watts Regulator Company  
**Address:** Rte. 114 & Chestnut St.  
 North Andover, MA 01845  
**Common Name:** Brass  
 Leaded semi-red brass  
**Chemical Name:** Copper-Zinc Alloys  
 Copper-Lead-Zinc Alloys

**Date:** June 1986  
**Phone:** 617-688-1811

## 2. Hazardous Ingredients Identification

<u>Ingredient</u>	<u>CAS. No.</u>	<u>TLV</u>	<u>PEL</u>	<u>Percent</u>
* Copper	7440-31-5	0.2mg/m3 as fume 1.0mg/m3 as dust	0.1mg/m3 as fume 1.0mg/m3 as dust	57.0-82.0
Tin	7440-31-5	2.0mg/m3	2.0mg/m3	0.0-10.0
* Lead	7439-92-1	0.15mg/m3	0.05mg/m3	8.0 Max.
Zinc	7440-66-6	5.0mg/m3	5.0mg/m3	8.0-42.0
* Antimony	7440-36-0	0.5mg/m3	0.5mg/m3	.80
Phosphorous	7723-14-0	0.1mg/m3	0.1mg/m3	0.2 Max.
Sulfur	7704-34-9	N/E	N/E	0.5 Max.
Iron	7439-89-6	5.0mg/m3	10.0mg/m3 as fume	0.40 Max.
* Nickel	7440-02-0	1.0mg/m3	1.0mg/m3	1.0 Max.

Alloy may include any or all of any combination of above elements.

\* This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 — Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR, Part 372. The listed toxic chemical(s) are referenced by an asterisk.

## 3. Physical Characteristics

**Appearance:** Solids or turnings, yellow to yellow-red in color  
**Boiling point:** N/A  
**Water Solubility:** None  
**Specific Gravity:** 7.5-9.0  
**Evaporation Rate:** N/A  
**Vapor Density:** N/A  
**Melting point:** 1,650°F-1,981°F  
**Percent Volatile by Vol.:** None

## 4. Fire and Explosion Hazards

Avoid contact between molten metal and water and/or oil residues.  
 Material does not present explosion or fire hazard.

## 5. Health Hazards

**Routes of Exposure:** Eyes - Particles may irritate eyes, if not removed.  
 Ingestion - May be harmful if swallowed.  
 Skin - May cause skin irritation.  
 Inhalation - Acute exposure during melting, grinding, buffing, or machining can cause irritation and congestion of the nose and throat. Prolonged exposure can produce a flu-like illness in addition to nervous system damage, kidney damage, anemia and damage to the reproductive system.

## 6. First Aid

Eyes - Particles should be removed by flushing with water unless a trained individual or physician is available.  
 Ingestion - See a Physician.  
 Skin - Flush with water and apply first aid cream.  
 Inhalation - Acute exposure, during melting, grinding, buffing or machining, requires air. Prolonged exposure requires physician's care with periodic medical examinations as follow-up.

## 7. Reactivity

**Stability:** Stable  
**Hazardous Polymerization:** N/A  
**Materials to avoid:** Oxidizers, Acids, Alkalis, Halogens and Halogenated hydrocarbons.

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### **8. Spill or Leak Procedures**

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If spills or leaks occur with contamination resulting, consult local, state or federal authorities prior to disposal. Avoid heavy generation of dusts during clean up.

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### **9. Personal Protective Equipment**

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Eyes - Safety glasses with side shields or face shield when material is being handled, ground, buffed or machined.

In the case of melting, employ the use of safety glasses with side shields and face shield with either being tinted for protection against brightness of melt.

Skin - Work gloves, aprons, etc. are advisable to protect hands and body.

Ingestion - Do not swallow.

Inhalation - During melting, provide a NIOSH approved respirator, local and general venting and exhausting, for fumes or dust if concentrations exceed PEL or TLV limits. During buffing, grinding, or machining, local and general exhausting will control dust and fumes to within these limits.

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### **10. Special Precautions & Other Comments**

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Store material away from incompatible materials. This material is potentially contaminated with cutting oils and water residues. If the material is contaminated, special precautions (such as personal protective equipment and process control) should be taken to avoid resulting exposures when handling and/or melting.

The information provided herein is believed to be accurate. Watts Regulator Co. makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage or injury which may result or arise out of the use or reliance on the information by any person.



## MATERIAL SAFETY DATA SHEET

Form W20

### 1. Product Identification

<b>Manufacturer's (Resellers) Name:</b> Watts Regulator Company	<b>Date:</b> June 1986
<b>Address:</b> Rte. 114 & Chestnut St. North Andover, MA 01845	<b>Phone:</b> 617-688-1811
<b>Common Name:</b> Copper	
<b>Chemical Name:</b> CDA122, CDA147	

### 2. Hazardous Ingredients Identification

Ingredient	CAS. No.	TLV	PEL	Percent
* Copper	7440-31-5	0.2mg/m3 as fume 1.0mg/m3 as dust	0.1mg/m3 as fume 1.0mg/m3 as dust	99.6-99.9
Phosphorus	7723-14-0	0.1mg/m3	0.1mg/m3	0-0.02
Sulfur	7704-34-9	N/E	N/E	0-0.40

Alloy may include any or all of any combination of above elements.

\* This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 – Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR, Part 372. The listed toxic chemical(s) are referenced by an asterisk.

### 3. Physical Characteristics

<b>Appearance:</b> Solids or turnings rust-red in color.	
<b>Boiling point:</b> 2595°C	<b>Vapor Density:</b> N/A
<b>Water Solubility:</b> None	<b>Melting Point:</b> 1083°C
<b>Specific Gravity:</b> 8.96	<b>Percent Volatile by Vol.:</b> None
<b>Evaporation Rate:</b> None	

### 4. Fire and Explosion Hazards

Avoid contact between molten metal and water and/or oil residues.  
 In solid form, the material is non-flammable.  
 Avoid contact with acids which can cause generation of flammable hydrogen gas. Dry chemical or CO<sub>2</sub> for small fires. Water spray, fog or foam for large fires.

### 5. Health Hazards

**Routes of Exposure:** Eyes - Particles may irritate, discolor or damage eyes if not removed by flushing with water or attended to by a trained individual or a physician.  
 Ingestion - May be harmful if swallowed.  
 Skin - May cause skin irritation.  
 Inhalation - Acute exposure during melting, grinding, buffing, machining or handling copper powder may produce symptoms resembling a cold. Prolonged exposure may cause discoloration of the skin and hair.

### 6. First Aid

Eyes - Particles should be removed by flushing with water. Get medical attention. Do not wear contact lenses when handling dusts.  
 Ingestion - Give large amounts of water and induce vomiting only if conscious. See a physician.  
 Skin - Wash with soap and water. If irritation persists, see a physician.  
 Inhalation - Acute exposure during melting, grinding, buffing, machining or handling copper powder requires fresh air. Prolonged exposure requires medical examination especially if there is a history of respiratory, liver, kidney, skin or blood diseases. When over exposed to dusts or fumes, and breathing has stopped, remove to fresh air and have qualified individual begin CPR immediately.

### 7. Reactivity

**Stability:** Stable  
**Incompatibility:** Cu<sub>2</sub>O may be formed when dusts are in the presence of acetylene. Contact with acids may liberate flammable and explosive hydrogen gas.  
**Hazardous Polymerization:** Will not occur.

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### 8. Spill or Leak Procedures

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Evacuate unprotected personnel from spill area. Ventilate area of release. Vacuum powder up. Avoid heavy generation of dusts during clean up. Consult local, state or federal authorities prior to disposal of contaminated material.

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### 9. Personal Protective Equipment

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Eyes - Safety glasses with side shields or face shield when material is being handled, ground, buffed or machined. In the case of melting, employ the use of safety glasses with side shields and face shield with either being tinted for protection against brightness of melt.

Skin - Impervious work gloves, aprons and clothing should be provided to protect hands and body.

Ingestion - Do not swallow. People should not be allowed to eat and smoke in areas where copper powder or dusts are handled, processed or stored.

Inhalation - During melting, provide a NIOSH approved respirator, local and general venting and exhausting for fumes or dust if concentrations exceed PEL or TLV limits. During buffing, grinding or machining local and general venting and exhausting must control dust and fumes to within these limits. When handling powder local venting and use of a NIOSH approved respirator should be employed where TLV and PEL limits are exceeded.

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### 10. Special Precautions and Other Comments

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Store material away from incompatible materials. This material is potentially contaminated with cutting oils and water residues. If the material is contaminated, special precaution (such as personal protective equipment and process control) should be taken to avoid resulting exposure when handling and/or melting.

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# MATERIAL SAFETY DATA SHEET

Form W20

## 1. Product Identification

**Manufacturer's (Resellers) Name:** Watts Regulator Company  
**Address:** Rte. 114 & Chestnut St.  
 North Andover, MA 01845  
**Common Name:** Nickel Alloys  
**Trade Name:** Monel & Hastelloy C

**Date:** June 1986  
**Phone:** 617-688-1811

## 2. Hazardous Ingredients Identification

Ingredient	CAS. No.	TLV	PEL	Percent
* Nickel	7440-02-0	1.0mg/m3	1.0mg/m3	42.0-67.0
Carbon	7440-44-0	N/E	N/E	0.15
Manganese	7439-96-5	C5mg/m3 as dust 1.0mg/m3 as fume	C5mg/m3 as dust	0.8
* Chromium	7440-47-3	0.5mg/m3	1.0mg/m3	20.0
* Cobalt	7440-48-4	0.1mg/m3	0.1mg/m3	2.5
Molybdenum	7439-98-7	10.0mg/m3	15.0mg/m3	17.0
Iron	7439-89-6	5.0mg/m3	10.0mg/m3	5.0
* Copper	7440-31-5	0.2mg/m3 as fume 1.0mg/m3 as dust	0.1mg/m3 as fume 1.0mg/m3 as dust	0-30.0
Silicon	7440-21-3	10.0mg/m3	15.0mg/m3	0.7

Alloy may include any or all of any combination of above elements.

\* This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 – Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR, Part 372. The listed toxic chemical(s) are referenced by an asterisk.

## 3. Physical Characteristics

**Appearance:** Solids or turnings silver gray in color.  
**Boiling Point:** 2900°C (Ni)      **Vapor Density:** N/A  
**Vapor Pressure:** N/A              **Melting Point:** 1455°C (Ni)  
**Solubility in Water:** N/A          **Specific Gravity:** 8.9 (Ni)  
**Percent Volatile by Vol.:** N/A

## 4. Fire and Explosion Hazards

In solid form, material is not combustible. Avoid contact between molten metal and water and/or oil residues.

## 5. Health Hazards

**Routes of Exposure:** Eyes - Particles may irritate eyes if not removed.  
 Ingestion - May be harmful if swallowed.  
 Skin - Allergic dermatitis in sensitized individuals.  
 Inhalation - Dust and fumes generated by melting, thermal cutting or welding may cause asthma, pulmonary edema or pulmonary fibrosis. Some forms of these metals can cause forms of cancer. Inhalation of dusts can cause silicosis. Some symptoms of these diseases could be shortness of breath, wheezing and dry cough.

## 6. First Aid

Eyes - Particles should be removed by flushing with water unless a trained individual or physician is available.  
 Ingestion - See a physician.  
 Skin - Wash dust from skin with soap and water. If irritation persists, see a physician.  
 Inhalation - Move to fresh air. See a physician.

## 7. Reactivity

**Stability:** Stable  
**Hazardous Polymerization** will not occur  
**Materials to avoid:** Contact between molten metal and water and/or oil residues.

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### 8. Spill or Leak Procedures

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If spills or leaks occur with contamination resulting, consult local state or federal authorities prior to disposal. Avoid heavy generation of dusts during clean up.

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### 9. Personal Protective Equipment

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Eyes - Safety glasses with side shields or face shield should be worn when material is being handled, ground, buffed or machined. In the case of welding, welding goggles should be worn. When melting or pouring molten metal, employ the use of safety glasses with side shields and face shield with either being tinted for protection against brightness of melt.

Skin - Protective clothing is advisable.

Ingestion - Do not swallow.

Inhalation - Provide a NIOSH approved respirator for dusts and fumes if TLV or PEL limits are exceeded. Employ the use of local and general venting and exhausting.

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### 10. Special Precautions and Other Comments

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This material is potentially contaminated with cutting oils and water residues. If the material is contaminated, special precautions (such as personal protective equipment and process control) should be taken to avoid resulting exposures when handling and/or melting.

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## MATERIAL SAFETY DATA SHEET

Form W20

### 1. Product Identification

<b>Manufacturer's (Resellers) Name:</b> Watts Regulator Company	<b>Date:</b> June 1986
<b>Address:</b> Rte. 114 & Chestnut St. North Andover, MA 01845	<b>Phone:</b> 617-688-1811
<b>Common Name:</b> Tool and Die, High Speed Steels	
<b>Chemical Name:</b> Ferrous or Non-ferrous Alloy	

### 2. Hazardous Ingredients Identification

Ingredient	CAS. No.	TLV	PEL	Percent
Cobalt	7440-48-4	0.1mg/m <sup>3</sup>	0.1mg/m <sup>3</sup>	0-8.0
* Chromium	7440-47-3	1.0mg/m <sup>3</sup>	0.5mg/m <sup>3</sup>	0-12.0
Iron	1309-37-1	10.0mg/m <sup>3</sup>	5.0mg/m <sup>3</sup>	
Manganese	7439-96-5	5.0mg/m <sup>3</sup> as dust	5.0mg/m <sup>3</sup> as dust 1.0mg/m <sup>3</sup> as fume	0.20-1.20
Molybdenum	7439-98-7	15.0mg/m <sup>3</sup>	10.0mg/m <sup>3</sup>	0-9.50
* Nickel	7440-02-0	1.0mg/m <sup>3</sup>	1.0mg/m <sup>3</sup>	0-1.40
Vanadium	1314-62-1	0.5mg/m <sup>3</sup> as dust 0.1mg/m <sup>3</sup> as fume	0.05mg/m <sup>3</sup> as dust 0.05mg/m <sup>3</sup> as fume	0-4.75
Titanium	13463-67-7	15.0mg/m <sup>3</sup>	5.0mg/m <sup>3</sup>	
Carbon	1333-86-4	3.5mg/m <sup>3</sup>	5.0mg/m <sup>3</sup> 3.5mg/m <sup>3</sup> (as carbon black)	0.35-2.30
Tungsten	7440-38-7	-----	5.0mg/m <sup>3</sup>	0-6.20
Silicon	7440-21-2	-----	5.0mg/m <sup>3</sup> as dust	0.25-2.00
Aluminum	7429-90-5	-----	10.0mg/m <sup>3</sup> as dust 5.0mg/m <sup>3</sup> as fume	

Alloy may include any or all of any combination of above elements.

\* This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 – Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR. Part 372. The listed toxic chemical(s) are referenced by an asterisk.

### 3. Physical Characteristics

<b>Appearance:</b> Solids, turnings or dusts gray to blue-black in color.	
<b>Boiling Point:</b> 5000°F	<b>Melting Point:</b> 2500°F
<b>Specific Gravity:</b> 7.8-8.2	<b>Vapor Pressure:</b> N/A
<b>Vapor Density:</b> N/A	<b>Solubility in H<sub>2</sub>O:</b> N/A
<b>Percent Volatiles by Vol.:</b> N/A	<b>Evaporation Rate:</b> N/A

### 4. Fire and Explosion Hazards

Avoid contact between molten metal and water and/or oil residues.

### 5. Health Hazards

**Routes of Exposure:** Eyes - Particles may irritate eyes if not removed.  
 Ingestion - May be harmful if swallowed.  
 Skin - May cause skin irritation.  
 Inhalation - Over exposure in excess of TLV and/or PEL may produce nausea, tightness of chest, fever, irritation of eyes, nose, throat and skin; loss of consciousness and death due to fumes or lack of oxygen. Prolonged exposure may result in potential for neurologic, pulmonary, respiratory, skin or other disease. Chromium, cobalt and nickel have been identified as suspected carcinogens. Aggravation of pre-existing respiratory or allergic conditions may occur in sensitized workers.



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## 6. First Aid

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Eyes - Flush eyes with water. If irritation persists, see a physician.  
Ingestion - See a physician.  
Skin - Brush off excess dust. Wash area well with soap and water.  
Inhalation - Remove to fresh air, if condition continues, see a physician. If breathing stops, remove to fresh air, perform CPR, if qualified, and get medical attention.

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## 7. Reactivity

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**Stability:** Stable  
**Incompatibility:** Reacts with strong acids to generate explosive hydrogen gas.  
**Hazardous Decomposition Products:** Metallic Oxide

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## 8. Spill or Leak Procedures

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If a spill or leak occurs with contamination resulting, contact local, state or federal authorities prior to disposal.

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## 9. Personal Protection Equipment

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Eyes - Safety glasses with side shields or face shield should be worn when material is being handled, ground or machined. In the case of welding, welding goggles should be worn. When melting or pouring molten metal, employ the use of safety glasses with side shields or face shield with either being tinted to protect against brightness of melt.  
Skin - Wear work gloves or other protective clothing as required.  
Ingestion - Do not swallow.  
Inhalation - During melting or welding provide a NIOSH approved respirator, local and general venting and exhausting may be employed to keep within TLV and PEL limits. During grinding or machining local and general venting and exhaustion must be employed to keep within TLV and PEL limits of dust and fumes.

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## 10. Special Precautions and Other Comments

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Store material away from incompatible materials.  
This material is potentially contaminated with oil and/or water residues. If material is contaminated, special precautions (such as personal protective equipment and process control) should be taken to avoid resulting exposures when handling and/or melting.

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# MATERIAL SAFETY DATA SHEET

Form W20

## 1. Product Identification

**Manufacturer's (Resellers) Name:** Watts Regulator Company  
**Address:** Rte. 114 & Chestnut St.  
 North Andover, MA 01845  
**Common Name:** Aluminum Alloys

**Date:** June 1986  
**Phone:** 617-688-1811

## 2. Hazardous Ingredients Identification

Ingredient	Cas. No.	TLV	PEL	Percent
Silicon	7440-21-3	10.0mg/m3	15.0mg/m3	0.40-.080
Iron	7439-89-6	5.0mg/m3	10.0mg/m3	0.7 max.
* Copper	7440-31-5	0.2mg/m3 as fume	0.1mg/m3 as fume	0.15-6.0
		1.0mg/m3 as dust	1.0mg/m3 as dust	
Manganese	7439-96-5	0.5mg/m3 as dust	0.5mg/m3 as dust	0-1.20
		1.0mg/m3 as fume		
* Chromium	7440-47-3	0.5mg/m3	1.05mg/m3	0-0.35
Zinc	7440-66-6	5.0mg/m3	5.0mg/m3	0.25-0.30
Bismuth	7440-69-9	N/E	N/E	0.35
Titanium	7440-32-6	N/E	N/E	0-0.15
Aluminum	7429-90-5	10.0mg/m3	N/E	98.5-99.05

Alloy may include any or all of any combination of above elements.

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## 3. Physical Characteristics

**Appearance:** Solids or turnings gray to silver gray in color.  
**Boiling Point:** 2057°C  
**Water Solubility:**  
**Specific Gravity:** 2.7  
**Evaporation Rate:** N/A

**Vapor Density:** N/A  
**Melting Point:** 660°C  
**Percent Volatile by Vol.:** None

## 4. Fire and Explosion Hazards

Avoid contact between molten metal and water and/or oil residues.  
 In solid form, this material is non-flammable.  
 Do not use Halogenated extinguishing agents. For fires involving aluminum fines or dust, use dry sand as a class extinguishing agent.

## 5. Health Hazards

**Routes of Exposure:** Eyes - Particles may irritate eyes if not removed.  
 Ingestion - May be harmful if swallowed.  
 Skin - May cause skin irritation.  
 Inhalation - High exposure may produce irritation of eyes and respiratory system. Welding may generate ozone which produces respiratory irritation and pulmonary edema.

## 6. First Aid

Eyes - Flush eyes with water. If irritation persists, see a physician.  
 Ingestion - See a physician.  
 Skin - Wash with soap and water. If irritation persists, see a physician.  
 Inhalation - Remove to fresh air if overexposed. See a physician.

## 7. Reactivity

**Stability:** Stable

**Hazardous Polymerization:** Will not occur.

**Incompatibility:** Bromates, chlorates, iodates, halogen acids, ammonium nitrate, and sodium hydroxide can cause explosive mixtures to form in the air. Hazardous decomposition products: N/A

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## 8. Spill or Leak Procedures

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If a spill or leak occurs with contamination resulting, contact local, state or federal authorities prior to disposal.

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## 9. Personal Protection Equipment

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Eyes - Safety glasses with side shields or face shield should be worn when material is being handled, ground or machined. In the case of welding, welding goggles should be worn. When melting or pouring molten metal, employ the use of safety glasses with side shields or face shield with either being tinted to protect against brightness of melt.

Skin - Work gloves and aprons are advisable to protect hands and body.

Ingestion - Do not swallow.

Inhalation - During melting or welding provide a NIOSH approved respirator, local and general venting and exhausting for fumes or dust if concentration exceeds TLV or PEL limits. During grinding or machining, local and general venting and exhausting must control dust and fumes to within these limits.

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## 10. Special Precautions and Other Comments

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Store material away from incompatible materials.

This material is potentially contaminated with oil and/or water residues. If material is contaminated, special precautions (such as personal protective equipment and process control) should be taken to avoid resulting exposures when handling and/or melting.

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## MATERIAL SAFETY DATA SHEET

Form W20

### 1. Product Identification

**Manufacturer's (Resellers) Name:** Watts Regulator Company  
**Address:** Rte. 114 & Chestnut St.  
 North Andover, MA 01845  
**Material Name:** Carbon Steels

**Date:** June 1986  
**Phone:** 617-688-1811

### 2. Hazardous Ingredients Identification

<u>Ingredient</u>	<u>CAS. No.</u>	<u>TLV</u>	<u>PEL</u>	<u>Percent</u>
Carbon	7440-44-0	N/E	N/E	0.08-0.45
Manganese	7439-96-5	C5mg/m3 as dust 1mg/m3 as fume	C5mg/m3 as dust	0.3-1.20
Phosphorous	7723-14-0	.1mg/m3	.1mg/m3	0.04-0.09
Sulfur	7704-34-9	N/E	N/E	0.05-0.35
Iron	7439-89-6	5.0mg/m3	10.0mg/m3 as fume	97.91-99.53

Alloy may include any or all of any combination of above elements.

### 3. Physical Characteristics

**Appearance:** Silver gray to dark blue in color.  
**Melting Point:** 1371°C - 1482°C  
**Vapor Pressure:** 1mmHg @ 1787°C  
 of iron dust  
**Boiling Point:** 3000°C

**Specific Gravity:** 7.84  
**Solubility:** Insoluble

### 4. Fire & Explosion Hazards

In solid form, material is not combustible under ordinary fire conditions. Fire & Explosion hazards are moderate when in the form of dust and is exposed to heat or flame, chemical reaction or contact with powerful oxidizers. Avoid contact between molten metal and water and/or oil residues. In dust or turnings form, fires have been noticed when material is contaminated with oil residues due to the oxidizing tendency of the steel.

Fire Extinguishing Methods: Use special dry chemicals and/or sand. The use of a self-contained breathing apparatus and protective clothing is advised.

### 5. Health Hazards

**Routes of Exposure:** Eyes - Particles may irritate eyes if not removed.  
 Ingestion - May be harmful if swallowed.  
 Skin - May cause skin irritation.  
 Inhalation - Dust or fumes generated by melting, welding or thermal cutting produces iron oxide fume. Prolonged inhalation of dusts and fumes may cause siderosis (shortness of breath). Chronic overexposure to fumes and dusts may cause lung damage, pulmonary difficulties and other disabling diseases.

### 6. First Aid

Eyes - Particles should be removed by flushing with water, unless a trained individual or physician is available.  
 Ingestion - See a physician.  
 Skin - Brush off dusts, wash with soap and water. Use a first aid cream.  
 Inhalation - Remove to fresh air. See a physician.

### 7. Reactivity

**Incompatibility:** May react with strong oxidizers. Avoid contact with molten metal and water and/or oil residues.

### 8. Spill or Leak Procedures

If spills or leaks occur with contamination resulting, consult local, state or federal authorities prior to disposal. Avoid heavy generation of dusts during clean up.

W Watts

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## 9. Personal Protective Equipment

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Eyes - Safety glasses with side shields or face shield should be worn when material is being handled, ground, buffed or machined. In the case of welding, welding goggles should be worn. When melting or pouring molten metal, employ the use of safety glasses with side shields and face shield with either being tinted for protection against brightness of melt.

Skin - Work gloves and aprons are advisable to protect hands and body.

Ingestion - Do not swallow.

Inhalation - Provide a NIOSH approved respirator for dusts and fumes if TLV or PEL limits are exceeded.

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## 10. Special Precautions and Other Comments

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Store material away from incompatible materials.

This material is potentially contaminated with cutting oils and water residues. If the material is contaminated, special precautions (such as personal protective equipment and process control) should be taken to avoid resulting exposures when handling and/or melting.

The information provided herein is believed to be accurate. Watts Regulator Co. makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, or injury which may result or arise out of the use or reliance on the information by any person.



# MATERIAL SAFETY DATA SHEET

Form W20

## 1. Product Identification

**Manufacturer's (Resellers) Name:** Watts Regulator Company  
**Address:** Rte. 114 & Chestnut St.  
 North Andover, MA 01845  
**Common Name:** Gray Iron  
**ASTM Alloy:** A48      **Class:** 20 + 25

**Date:** June 1986  
**Phone:** 617-688-1811

## 2. Hazardous Ingredients Identification

Ingredient	Cas. No.	TLV	PEL	Percent
Carbon	7440-44-0	N/E	N/E	3.0-4.0
Silicon	7440-21-3	10mg/m3	15mg/m3	1.9-2.6
Manganese	7439-96-5	C5mg/m3 as dust 1mg/m3 as fume	C5mg/m3 as dust	0.5-0.8
Sulfur	7704-34-9	N/E	N/E	0.08-0.8
Phosphorous	7723-14-0	.1mg/m3	.1mg/m3	0.15-0.8
Iron	7439-89-6	5mg/m3	10mg/m3	91.0-94.4

Alloy may include any or all of any combination of above elements.

## 3. Physical Characteristics

**Appearance:** Solids or turnings gray to gray-black in color.  
**Boiling Point:** 2750°C  
**Vapor Pressure:** N/A  
**Specific Gravity:** 7.86 for Iron  
**Water Solubility:** None

**Vapor Density:** N/A  
**Melting Point:** 1535°C  
**Percent Volatile by Vol.:** None  
**Evaporation Rate:** N/A

## 4. Fire and Explosion Hazards

In solid form, material is not combustible under ordinary fire conditions. Avoid contact between molten metal and water and/or oil residues. In dust or turnings form, fires have been noticed when material is contaminated with oil residues, due to the oxidizing tendency of iron.

**Fire Extinguishing Methods:** Use special dry chemicals and/or sand. The use of self-contained breathing apparatus and protective clothing is advised.

## 5. Health Hazards

**Routes of Exposure:** Eyes - Particles may irritate eyes if not removed.

Ingestion - May be harmful if swallowed.

Skin - May cause skin irritation.

Inhalation - Dust or fumes generated by melting, machining, grinding or welding produces iron oxide fume.

Prolonged inhalation of dusts or fumes may cause siderosis, which can manifest itself in the form of shortness of breath.

## 6. First Aid

Eyes - Particles should be removed by flushing with water unless a trained individual or physician is available.

Ingestion - See a physician.

Skin - Rinse with water then use a first aid cream.

Inhalation - Move to fresh air.

## 7. Reactivity

**Stability:** Stable

**Hazardous Polymerization:** None

**Incompatibility:** Iron may cause violent decomposition of hydrogen peroxide.

## 8. Spill or Leak Procedures

If spill or leaks occur with contamination resulting, consult local, state or federal authorities prior to disposal. Avoid heavy generation of dusts during clean up.

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## 9. Personal Protective Equipment

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**Eyes** - Safety glasses with side shields or face shield should be worn when material is being handled, ground, buffed or machined. In the case of welding, welding goggles should be worn. Melting or pouring molten metal employ the use of safety glasses with side shields and face shields with either being tinted for protection against brightness of melt.

**Skin** - Work gloves and aprons are advisable to protect hands and body.

**Ingestion** - Do not swallow.

**Inhalation** - During melting, or welding, provide a NIOSH approved respirator, local and general venting and exhausting for fumes or dust if concentrations exceed PEL or TLV limits. During buffing, grinding, or machining, local and general venting and exhausting must control dust and fumes to within these limits.

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## 10. Special Precautions & Other Comments

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Store material away from incompatible materials.

This material is potentially contaminated with cutting oils and water residues. If the material is contaminated, special precautions (such as personal protective equipment and process control) should be taken to avoid resulting exposures when handling and/or melting.

The information provided herein is believed to be accurate. Watts Regulator Co. makes no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage or injury which may result or arise out of the use or reliance on the information by any person.



## MATERIAL SAFETY DATA SHEET

Form W20

**1. Product Identification**

**Manufacturer's (Resellers) Name:** Watts Regulator Company  
**Address:** Rte. 114 & Chestnut St.  
 North Andover, MA 01845  
**Common Name:** Stainless Steels

**Date:** June 1986  
**Phone:** 617-688-1811

**2. Hazardous Ingredients Identification**

<u>Ingredient</u>	<u>Cas. No.</u>	<u>TLV</u>	<u>PEL</u>	<u>Percent</u>
Carbon	7440-44-0	N/E	N/E	0.07-0.16
Manganese	7439-96-5	C5mg/m3 as dust 1mg/m3 as fume	C5mg/m3 as dust	0.80-6.00
Silicon	7440-21-3	10mg/m3	15mg/m3	0.25-2.00
*Chromium	7440-47-3	0.5mg/m3	1.0mg/m3	11.5-22.00
*Nickel	7440-02-0	1.0mg/m3	1.0mg/m3	0.28-50.00
*Copper	7440-31-5	0.2mg/m3 as fume 1.0mg/m3 as dust	0.1mg/m3 as fume 1.0mg/m3 as dust	0.08-3.50
Iron	7439-89-6	5mg/m3	10mg/m3	22.50-87.02

Alloy may include any or all of any combination of above elements.

\* This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 – Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR, Part 372. The listed toxic chemical(s) are referenced by an asterisk.

**3. Physical Characteristics**

**Appearance:** Solids or turnings silver to blue-black in color.  
**Boiling Point:** High  
**Melting Point:** 2400-2800°F  
**Specific Gravity:** 7.5-8.5

**Vapor Density:** Nil  
**Solubility in Water:** Insoluble

**4. Fire and Explosion Hazards**

Material does not pose a fire or explosion hazard.  
 Avoid contact between molten metal and water and/or oil residues.

**5. Health Hazards**

**Routes of Exposure:** Eyes - Particles may irritate eyes if not removed.  
 Ingestion - May be harmful if swallowed.  
 Skin - May cause skin irritation.  
 Inhalation - Dust or fumes generated by melting, welding or thermal cutting produces fumes containing previously listed elements. Coughing and wheezing, headache, chest pains, fever and loss of weight are symptoms of potential over exposure. Hexavalent chromium and nickel over exposure is associated with increased risk of pulmonary cancer.

**6. First Aid**

**Eyes** - Particles should be removed by flushing with water unless a trained person or physician is available.  
**Ingestion** - See a physician.  
**Skin** - Wash with soap and water. Use first aid cream. If condition persists, see a physician.  
**Inhalation** - For high exposure, move exposed person to fresh air at once. If breathing has stopped, provide CPR if qualified. Get medical attention as soon as possible.

**7. Reactivity**

**Hazardous Polymerization:** Will not occur.  
**Stability:** Stable  
**Incompatibility:** Strong oxidizers in contact with dust or fume may cause fires.



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### 8. Spill or Leak Procedures

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If a spill or leak occurs with contamination resulting, consult local, state or federal authorities prior to disposal.

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### 9. Personal Protection Information

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Eyes - Safety glasses with side shields or face shield should be worn when material is being handled, ground or machined. In the case of welding, welding goggles should be worn. When melting or pouring molten metal, employ the use of safety glasses with side shields and face shields with either being tinted for protection against brightness of melt.

Skin - Work gloves and aprons are advisable to protect hands and body.

Ingestion - Do not swallow.

Inhalation - During melting or welding, provide a NIOSH approved respirator, local and general venting and exhausting for fumes or dust if concentration exceed TLV or PEL limits. During grinding or machining, local and general venting and exhausting must control dust, fumes to within these limits.

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### 10. Special Precautions and Other Comments

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Store material away from incompatible materials.

This material is potentially contaminated with cutting oil and/or water residues. If the material is contaminated, special precautions (such as personal protective equipment and process control) should be taken to avoid resulting exposures when handling and/or melting.

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# MATERIAL SAFETY DATA SHEET

Form W20

## 1. Product Identification

**Manufacturer's (Resellers) Name:** Watts Regulator Company  
**Address:** Rte. 114 & Chestnut St.  
 North Andover, MA 01845  
**Date:** February 1986  
**Phone:** 617-688-1811

**Common Name:** Cutting and form tool grades of carbide  
**Chemical Name:** Refractory Metal Carbide

## 2. Hazardous Ingredients Identification

Ingredient	CAS No.	OSHA PEL	ACHIH TLV	Percent by Weight
Tungsten	7440-38-7	-----	5.0mg/m3 (as W)	37.6 - 97.0
* Cobalt	7440-48-4	0.1mg/m3	0.1mg/m3	3.0 - 30.0
Tantalum	7440-25-7	5.0mg/m3 (as Ta)	5.0mg/m3 (As Ta)	0 - 56.4
Chromium Carbide	7440-47-3	1.0mg/m3 (as Cr+3)	0.5mg/m3	0 - 5.1
* Chromium (+3)	7440-47-3	1mg/m3	0.5mg/m3	0 - 2.5

Material may include any or all of any combination of above elements.

\* This product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 - Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. The listed toxic chemical(s) are referenced by an asterisk.

## 3. Physical Characteristics

**Appearance:** Dark gray metal  
**Boiling Point:** N/A  
**Vapor Pressure:** N/A  
**Vapor Density:** N/A  
**Solubility in Water:** Insoluble

**Sp. Gr.:** 11.0 - 15.5  
**Percent Volatile by Vol.:** 0  
**Evaporation Rate:** N/A  
**How best Monitored:** by Air

## 4. Fire and Explosion Hazard

**Flash Point:** N/A  
 Hard cemented Carbide product is not a fire hazard. Dusts generated in grinding operations may ignite if allowed to accumulate and subjected to ignition source.  
**Extinguishing Media:** For powder fires, use dry sand, dry dolomite, ABC type fire extinguisher, or flood with water.  
**Special Firefighting Procedures:** For a powder fire contained to a small area, use a respirator (NIOSH) approved for toxic dusts and fumes. For a large fire, firefighters should use self-contained breathing apparatus.

## 5. Health Hazards

**Routes of Exposure:** Eyes - Particles may irritate eyes if not removed.  
 Ingestion - Reports suggest that ingestion of significant amounts of cobalt has the potential for causing blood, heart and other organ problems.  
 Skin - Can cause irritation or an allergic skin rash due to cobalt sensitization.  
 Inhalation - Dusts from grinding can cause irritation of the nose and throat. Some studies associate periodic inhalation of this respirable dust with the potential for transient respiratory reaction in cobalt hyper-sensitized individual and prolonged excessive inhalation of respirable dust or mist with transient permanent or fatal respiratory disease.

## 6. First Aid (Applies to dusts or mists)

**Eyes -** Flush eyes with water. If irritation persists, see a physician.  
**Ingestion -** If large quantities are ingested, dilute with large quantities of water and induce vomiting only if conscious.  
**Inhalation -** If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath, etc.) remove from exposure and seek medical attention.  
**Skin -** If irritation or rash occurs, thoroughly wash affected area with soap and water and isolate from exposure. If irritation persists, seek medical attention.

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## 7. Reactivity

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**Stability:** Stable

**Incompatibility:** Contact of dust with strong oxidizers may cause fire or explosion.

**Hazardous Decomposition Products:** None

**Hazardous Polymerization:** Will not occur

**Materials to avoid:** Strong Acids

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## 8. Spill or Leak Procedures

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Ventilate area of spill. Clean up with methods which avoid dust generation such as a vacuum with appropriate filtering, wet dust mop or wet cleanup. If airborne dust is generated, use a NIOSH approved respirator. May be sold as scrap for reclaim. If material is contaminated after a spill, consult local, state or federal authorities prior to disposal.

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## 9. Personal Protection Information

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**Eyes** - Safety glasses with side shields or goggles are recommended.

**Skin** - Protective gloves or barrier cream are recommended when contact with dust or mist is likely.

**Ingestion** - Do not swallow.

**Inhalation** - Use a NIOSH approved respirator if airborne dust exceed TLV or PEL limits, local and general venting and exhausting during grinding operations should be employed to control dust emissions to within PEL and TLV limits.

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## 10. Special Precautions and Other Comments

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Store material away from oxidizers.

This information provided herein is believed to be accurate. Watts Regulator Co. makes no representation regarding the accuracy or completeness of the information and assumes no liability for any loss, damage or injury which may result or arise out of the use or reliance on the information by any person.