



#### **GENERAL PROPERTIES**

Symbol: Fe
Atomic Number: 26
Atomic Weight: 55.847
Density: 7.874 gm/cc
Melting Point: 1535 °C
Boiling Point: 2750 °C

Thermal Conductivity: 0.804 W/cm/°K @ 298.2 °K Electrical Resistivity: 9.71 microhm-cm @ 20 °C

Electronegativity: 1.8 Paulings

Specific Heat: 0.106 Cal/g/°K @ 25 °C

Heat of Vaporization: 84.6 K-Cal/gm atom at 2750 °C

Heat of Fusion: 3.56 Cal/gm mole

#### **MATERIAL OVERVIEW**

Characteristics: Silver-white, malleable metal. The only metal that can be tempered. Mechanical properties are altered by impurities, especially carbon. Iron is highly reactive chemically, a strong reducing agent, oxidizes readily in moist air and reacts with steam when hot to yield hydrogen and iron oxides. Dissolves in nonoxidizing acids (sulfuric and hydrochloric) and in cold dilute nitric acid.

Hazards: Tolerance (as oxide fume): 5 mg/m<sup>3</sup> of air. Dust and fine particles suspended in air are flammable and an explosion risk. Tolerance for soluble salts (as Fe), 1 mg/m<sup>3</sup> of air.

For more information visit the reference library at our web site: http://www.espi-metals.com

TYPICAL ANALYSES Impurities in ppm						
	3N5	5N		3N5	5N	
Cu	<1	<1	Ag	42	<1	
Mg	2	1	Na	55	1	
Mn	1	3	S	67	-	
Ni	40	2	Zn	8	-	
P	10	-	Sn	5	-	
Si	4	1				

## **WIRE**

Item DescriptionGradesIron Wire .005" to .090"3N55N

Wire is spooled to order and sold by the foot or meter.

## **ROD**

Item Description		<b>Grades</b>
Iron Rod .0625" to 1"	3N5	5N

Rod is cut to order and sold by the inch or foot.

#### **FOIL**

<u>Item Description</u>		<b>Grades</b>
Iron Foil .001" to .009"	3N5	5N

Foil is cut to order and sold by the square inch or square foot.

#### **SHEET**

<u>Item Description</u>		<u>Grades</u>
Iron Sheet .010" to 1"	3N5	5N

Sheet stock is cut to order and sold by the square inch or square foot.

#### **SPUTTERING TARGETS**

<u>Item Description</u>		<u>Grades</u>
Iron Sputtering Target 2"D X .125"T	3N5	5N
Iron Sputtering Target 2"D X .250"T	3N5	5N
Iron Sputtering Target 4"D X .125"T	3N5	5N
Iron Sputtering Target 4"D X .250"T	3N5	5N
Iron Sputtering Target 5"D X .125"T	3N5	5N
Iron Sputtering Target 5"D X .250"T	3N5	5N
Iron Sputtering Target 6"D X .125"T	3N5	5N
Iron Sputtering Target 6"D X .250"T	3N5	5N

Additional sizes available upon request. Sputtering Targets produced from Iron compounds are available upon request.

# POWDER, SHOT, PELLETS, & INGOT

<u>Item Description</u>		<u>Grades</u>	
Iron Shot .125"	3N5	5N	
Iron Pellets .250"D X .125"L	3N5	5N	
Iron Pellets .250"D X .250"L	3N5	5N	
Iron Ingot	3N5	5N	
Iron Powder -100 Mesh	3N5	5N	
Iron Powder -325 Mesh	3N5	5N	

Powder, shot, pellets, and ingots are packaged to order and sold by the gram or kilogram.

# **COMPOUNDS**

<u>Item Description</u>	<b>Grades</b>
Iron Antimonide, FeSb <sub>2</sub> , 1/4" Pieces by Down	2N5
Iron Antimonide, FeSb, 1/4" Pieces by Down	2N5
Iron Antimonide, Fe <sub>3</sub> Sb <sub>2</sub> , 1/4" Pieces by Down	2N5
Iron Arsenide, FeAs, 1/4" Pieces by Down	2N5
Iron Arsenide, Fe <sub>2</sub> As, 1/4" pieces by Down	2N5

(Continued on Next Page)

TEL: 800-638-2581	E-MAIL: sales@espi-metals.com	FAX: 541-488-8313
-------------------	-------------------------------	-------------------

# **COMPOUNDS**

<u>Item Description</u>		<u>Grades</u>
Iron Arsenide, FeAs <sub>2</sub> , 1/4" Pieces by Down		3N
Iron Boride, FeB, -35 Mesh	2N	
Iron Boride, Fe <sub>2</sub> B, -35 Mesh	2N	
Iron Bromide, FeBr <sub>2</sub> , -20 Mesh	2N5	
Iron Bromide, FeBr <sub>3</sub> , -80 Mesh	2N5	
Iron Carbide, Fe <sub>3</sub> C, -325 Mesh		3N
Iron Chloride, FeCl <sub>2</sub> , -80 Mesh	2N5	4N
Iron Chloride, FeCl <sub>3</sub> , -60 Mesh		3N
Iron Fluoride, FeF <sub>2</sub> , -80 Mesh	2N5	
Iron Fluoride, FeF <sub>3</sub> , -80 Mesh	2N5	
Iron Iodide, FeI <sub>2</sub> , -60 Mesh	2N5	
Iron Nitride, Fe <sub>x</sub> N, -325 Mesh		3N
Iron Oxide, FeO, -10 Mesh		3N

(Continued on Next Page)

# **COMPOUNDS**

Item Description		<u>Grades</u>		
Iron Oxide, Fe <sub>2</sub> O <sub>3</sub> , 1/2"-1/8" Pieces			3N	
Iron Oxide, Fe <sub>2</sub> O <sub>3</sub> , -325 Mesh			3N	4N
Iron Oxide, Fe <sub>3</sub> O <sub>4</sub> , 5 Microns or Less		2N5		
Iron Oxide, Fe <sub>3</sub> O <sub>4</sub> , -325 Mesh	1N5			
Iron Phosphide, Fe <sub>2</sub> P, -40 Mesh			3N	
Iron Phosphide, Fe <sub>3</sub> P, -40 Mesh			3N	
Iron Selenide, FeSe, -40 Mesh			3N	
Iron Silicide, FeSi <sub>2</sub> , -20 Mesh			3N	
Iron Silicide, FeSi, -20 Mesh			3N	
Iron Sulfide, FeS, -100 Mesh			3N	
Iron Sulfide, FeS <sub>2</sub> , -100 Mesh			3N	
Iron Telluride, FeTe <sub>2</sub> , 1/4" Pieces by Down		2N5		
Iron Telluride, FeTe, 1/4" Pieces by Down		2N5		

(Continued on Next Page)

## **COMPOUNDS**

<u>Item Description</u>	<u>Grades</u>	
Iron Titanate, Fe <sub>2</sub> TiO <sub>5</sub> , -150, +325 Mesh	3N	
Iron Titanate, Fe <sub>2</sub> TiO <sub>5</sub> , -325 Mesh	3N	
Iron Titanate, FeTiO <sub>3</sub> , -150, +325 Mesh	3N	
Iron Titanate, FeTiO <sub>3</sub> , -325 Mesh	3N	
Iron Tungstate, FeWO <sub>4</sub> , -200 Mesh	3N	
Iron Zirconate, Fe <sub>2</sub> O <sub>3</sub> +ZrO <sub>2</sub> , -200 Mesh	2N7	

Compounds are packaged to order and sold by the gram or kilogram.

"Minimize disposal costs"

Orders are packaged to your quantity requirements.