



# MATERIAL SAFETY DATA SHEET

Version 2.2  
Issued 20 September 2013

## I. PRODUCTION IDENTIFICATION

Product name: Stainless Steel Shot, Beta Shot, Cr17,Cr17 Shot, Cr14, Cr14 Shot  
 Manufacturer: Sigma Wear Parts (Pty) Ltd.  
 Distributer: Abrasives MFG LLC, Houston, Texas, USA  
 Web Site: www.Abrasivesllc.com  
 Address: 6 Field Road, Lilianton  
 Boksburg, South Africa.  
 Telephone: +27 11 823 4443  
 Fax: +27 11 823 3555

Product Description: Stainless Steel Shot, Beta Shot, comprise stainless steel spherical balls of size range 0.025mm up to 4mm diameter.

Chemical Family: Ferrous

## II. Hazardous Ingredients.

The term HAZARDOUS should be interpreted as a term required and defined by laws, regulations, Statutes or ordinances, and does not necessarily imply the existence of any hazard when the products are used as directed by Sigma Stainless steel.

<u>Chemical Name</u>	<u>CAS Reg. No</u>	<u>% Weight</u>	<u>ACGIH TLV (mg/m<sup>3</sup>)</u>	<u>OSHA PEL(mg/m<sup>3</sup>)</u>
<b>Carbon ( C )</b>	7740-44-0	<0.30	3.5 (Carbon Black)	3.5 (Carbon Black)
<b>Chromium (Cr),</b> Elemental metal and Inorganic compounds as Cr metal Cr II compounds –as Cr CR III compounds –as Cr CR VI compounds –Water soluble Cr VI compounds –Insoluble Chromic Acid and Chromates as CrOx Chromium salts-Insoluble as Cr	7440-47-3	12-20	0.5 None established. 0.5 0.05 0.01 None established. None established.	1 0.5 0.5 None established. None established. 0.1(ceiling) 1
<b>Iron (Fe)</b>	7439-86-6	Balanc e	5 (As Oxide Fume)	10 (Total Particulate)
<b>Manganese (Mn)</b> Elemental and Inorganic compounds, as Mn Fume as Mn and Mn Oxide	7439-96-5	<2.0	0.2 (Fume)	5 (Ceiling) 5 (ceiling)
<b>Nickel (Ni)</b> Elemental metal, Insoluble inorganic compounds of Ni Soluble organic compounds of Ni	7440-02-0	0.2- 0.95%	1.5 (Inhalable fraction) 0.2 (Inhalable Fraction) 0.1 (Inhalable Fraction)	0.1 (Soluble)



<b>Silicon (Si)</b> As Silicon Dioxide (SiO <sub>2</sub> )	7440-21-3 14808-60-7	<4.0 0.00	10 (Dust). 0.05 (Respirable fraction)	5 (Respirable) 10/(%SiO <sub>2</sub> +2); SiO <sub>2</sub> measured as Respirable fraction
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### III. PHYSICAL DATA

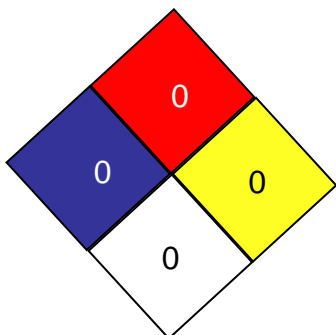
Cast stainless steel shot is in a non-hazardous condition when received. Fine metallic dust is generated as the shot breaks down from impact and wear during normal use. The Fe content of the product is greater than 70% and thus the dust or fume produced will consist of mainly of Iron Oxide, this dust so created can be a small explosion hazard.

<b>Boiling Point:</b>	3123-3423°C	<b>Melting Point:</b>	1410°C - 1480°C
<b>Specific Gravity (at 293°K):</b>	7.7g.ccm	<b>Vapour Pressure</b>	Not Applicable
<b>% Volatile by volume</b>	Not Applicable	<b>pH:</b>	Not Applicable
<b>Evaporation Rate</b>	Not Applicable	<b>Vapour Density</b>	Not Applicable
<b>Solubility in Water</b>	Not Applicable	<b>Percent Solid by Weight</b>	100%

### IV. FIRE AND EXPLOSION HAZARD DATA

**Flash Point:** Not Applicable  
**Auto-ignition Temperature:** (Solid iron exposed to oxygen)-1200°K  
**Flammability Limits:** Not Applicable

**Cast stainless steel shot will not burn or explode.** A mild fire or explosion hazard situation may be created due to the fine dust that may result from use, when the vacuum condition of the shot blaster is poor. Fire extinguishing method for dust created due to use-use Class D extinguishing agents or dry sand to exclude air. Do not use water or other liquids or foam.



#### NFPA HAZARD RATING

<b>4= Extreme</b>	<b>3=High</b>	<b>2=Moderate</b>	<b>1=Slight</b>	<b>0=Insignificant</b>
<b>Health (blue): 0</b>	<b>Flammability (red): 0</b>	<b>Reactivity (yellow): 0</b>	<b>Special (Colourless):</b>	

### V. HEALTH HAZARD DATA

**Threshold Limit Values:** Permissible exposure limits – see Section II



**Carcinogenicity:** OSHA, not listed, IARC, chromium [VI] – carcinogenic to humans (Group 1), metallic chromium and chromium [III] compounds-not classifiable as to their carcinogenicity to humans (Group 3); nickel compounds are carcinogenic to humans, metallic nickel is possibly carcinogenic to humans (Group 2B) Stainless steel Shot, made thereof respectively, is not reported to be carcinogenic.

Fumes can be generated by welding or flame cutting surface containing new or used stainless steel shot or the dust created by use of the abrasive. Welding or flame cutting may convert a small portion of the chromium to hexavalent chromium [VI]. IARC reports that welding fumes are possibly carcinogenic to humans.

Over exposure to dust and fumes may cause mouth, eye and nose irritation. Prolonged over exposure to manganese dust or fume affects the central nervous system. Chronic over exposure can cause manganese poisoning and attendant apathy, loss of appetite, uncontrolled laughter, insomnia followed by sleepiness, headache, difficulty in walking, frequent falling, tremors, salivation sweating and mental detachment. Prolonged over exposure to iron oxide fume can cause siderosis or “iron pigmentation” of the lung. It can be seen on a chest x-ray but causes little or no disability.

**Target Organs:** Lung for chromium and lung and nasal for nickel

**Primary Routes of Entry:** Inhalation of dust formed during use or shot or dust particles in eyes

**Emergency and First Aid Procedure:** If inhaled, move out of the area into fresh air. Flush eyes with running water and have any remaining particles removed from eyes by a qualified person.

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## VI. REACTIVITY DATA

**Stability:** Stable  
**Hazardous polymerization:** Will not occur  
**Hazardous decomposition products:** None, Shot will break down into progressively smaller particles and dust during normal use.

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## VII. SPILL OR LEAK PROCEDURES

Shot spilled or leaked onto floors can create hazardous walking conditions. No special precautions need to be followed when cleaning up spills or leaks of shot. When cleaning up large quantities of dust an OSH approved respirator should be used. Spilled shot can be reclaimed for reuse or disposed of as a non-hazardous solid waste. Collected dust from blast cleaning or shot preening operations always contains contaminants from the surface of the parts being processed and therefore the dust may be classed as hazardous waste and, as such, must be disposed of according to appropriate local, state or federal regulations.

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## VIII. SPECIAL PROTECTION INFORMATION

**Ventilation:** General Ventilation and local exhaust should be provided to keep the dust levels below the TLV's shown in Section II



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**Respiratory protection:** If the dust created by use exceeds the ACGIH TLV's and OSHA PEL's indicated in Section II, an OSH approved respirator should be worn.

**Eye Protection:** Approved safety glasses with eye shields should be worn

**Other Protective**

**Equipment:** None required

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## **IX. SPECIAL PRECAUTIONS**

**Precautions to be taken**

**in handling and storage:** Observe maximum floor loading limitations

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