



(1) Product and Supplier Identification	
<b>Product Name</b>	<b>Sintered Samarium Cobalt [SmCo] Permanent Magnets</b>
<b>Supplier's Name</b>	International Magnaproductions
<b>Address</b>	3100 Cascade Drive
<b>Section in Charge</b>	Technical Section
<b>Person in Charge</b>	Brian M. Coleman
<b>Telephone</b>	(219)465-1998
<b>Fax</b>	(219)462-5146
<b>Email</b>	brian@magnetsim.com

(2) Hazards Identification	
<b>Classification Regulation No 1272/2008 CLP-Regulation</b>	Not Applicable. Semi-finished and finished products constitute manufactured articles under the terms of the REACH Regulation (EC) No 1907/2006. For articles, there is no obligation to classify according to CLP-Regulation
<b>Labeling Regulation No 1272/2008</b>	Not Applicable
<b>Additional Information</b> In case of processing that creates dust or particulates, please observe following warnings:	Hazard statements result from the composition of the permanent magnets and coating
<b>Hazard Statements</b>	See "Other Hazards", causes skin irritation, serious eye irritation, may cause allergy or asthma or breathing difficulties if inhaled. Prolonged skin contact may cause may cause irritation or allergic skin reaction (dermatitis). May cause long lasting harmful effects to aquatic life.
<b>Precautionary Statements</b>	Do not breathe dust/fume/gas/mist/vapors/spray. In case of inadequate ventilation, wear adequate respiratory equipment and person protective equipment, as required. Avoid release into environment. Do not eat, drink or smoke when using this product. If skin irritation occurs: get medical attention.
<b>Other Hazards</b>	<p><b>Dry Mechanical Processing</b> of rare earth permanent magnet alloys is permitted only under special safety precautions because dusts which are capable of self-heating or pyrophoric dusts with a tendency to explode may be produced.</p> <p><b>Wet Mechanical Processing</b> reacts with the magnet grinding and may form hydrogen already at room temperature. <b>Attention</b> – Formation of ex-atmospheres possible! Part of the resulting hydrogen is stored in the material. The resulting processing sludges must be kept under a protective liquid because dried out sludge are capable of self-heating or may react. In this case, stored hydrogen volume burns off with flames.</p> <p><b>Magnetized Parts</b> generate magnetic fields and can attract magnetizable materials. This may result in injury during handling of magnets. Electronic devices and measuring tools may be changed in calibration or damaged by the high magnetic field strength. Please keep magnetized magnets away from computers, displays and magnetic storage devices. <b>People with heart pacemakers must keep away from magnetic fields.</b></p>
<b>PBT and vPvB Assessment:</b>	Not applicable



(3) Composition/Information on Ingredients			
<b>Chemical Characterization</b>	Description: Coated permanent magnet in compact (finished) form		
<b>Dangerous Components</b>	The classifications below reflect the classification of each pure substance respectively and are intended for information only		
CAS: 7440-19-9 EINICS: 231-128-7	Samarium (powder) [Sm] Xi R36/38, F R11 R53 Flam. H228; H315 ; H319 ; H413	~35%	
CAS: 7440-48-4 EINICS: 231-158-0 Index number: 027-001-00-9	Cobalt [Co] Xi R42/43, R53 Resp. Sens. 1, H334 Skin Sens. 1, H317 ; H413	~65%	
<b>Additional Information (listed rare earths)</b>	Classification as per CLP notification. Listed classifications refer exclusively to powder form. Specified rare earth are classified as NON-hazardous in solid form.		

(4) First Aid Measures	
<b>After Inhalation</b>	If metal vapors or solid dusts have been inhaled. Get the affected person out in the fresh air and seek medical attention.
<b>After Skin Contact</b>	Brush off powders and wash well with soap and water. Foreign bodies which have penetrated the skin must be removed and the wound cleaned thoroughly.
<b>After Eye Contact</b>	Rinse opened eye for several minutes under running water until clear. If symptoms persist, seek medical attention.
<b>After Swallowing</b>	Seek medical attention if the symptoms persist.
<b>Medical Information</b>	Most important symptoms and effect, both acute and delayed. No further relevant information or indication of any immediate medical attention and special treatment available.

(5) Firefighting Measures	
<b>Suitable Extinguishing Agents</b>	Extinguishing agents must be adapted to the environment. Non-combustible, dry chemicals without oxygen compounds or sand should be used.
<b>Special Hazards arising from the Substance or Mixture</b>	No further relevant information available.
<b>Advice for Firefighters (Protective Equipment)</b>	No special measure required
<b>Flashpoint, Flammable Limits, LEL, UEL</b>	Not determined.

(6) Accidental Release Measures	
<b>Personal Precautions, Protective Equipment, and Emergency Procedures</b>	No special measures required.
<b>Environmental Precautions</b>	No special measures required.
<b>Methods and Material for Containment and Clean Up</b>	No special measures required.
<b>Reference to Other Sections</b>	Section 7 for Safe Handling Section 8 for Personal Protection Equipment Section 13 for Disposal Information



(7) Handling and Storage	
<b>Precautions for Safe Handling</b>	No protective measures are required in the provided form.
<b>Dry Mechanical Processing</b>	This processing of rare earth permanent magnet alloys is permitted only under special safety precautions because dusts which are capable of self-heating or pyrophoric dusts with a tendency to explode may be produced.
<b>Wet Mechanical Processing</b>	Watery processing medium can react with the magnet grinding and may form hydrogen already at room temperature. <b>Attention</b> – Formation of ex-atmospheres possible! Part of the resulting hydrogen is stored in the material. The resulting processing sludges must be kept under a protective liquid because dried out sludge are capable of self-heating or may react. In this case, stored hydrogen volume burns off with flames. Also, see Section 8.
<b>Information about protection against Explosions/Fires</b>	No particular measures are required in the provided form.
<b>Conditions for Safe Storage, including Incompatibilities</b>	Please keep magnetized magnets away from computers, displays and magnetic storage devices, like floppy discs, magnetic tapes or credit cards as it can destroy or alter the magnetic data. <b>People with heart pacemakers must keep away from magnetic fields.</b>
<b>Storeroom and Receptacle Requirements</b>	Store in dry location free of corrosive atmosphere. Keep away from magnetic objects such as iron, cobalt or nickel and high energy magnetic fields.
<b>Common Storage Facility and Conditions</b>	Not applicable
<b>Storage Class and Specific End Uses</b>	Not applicable

(8a) Exposure Controls/Personal Protection	
<b>Additional Information about Design of Technical Systems</b>	Provide filtered ventilation of working area for all processing steps. Suitable breathing apparatus must be used ( <i>see personal safety equipment</i> ) for repair and maintenance work on air handling systems, especially during filter changes.
<b>Control Parameters</b>	Components with limit values that require monitoring at the workplace
<b>7440-48-4 Cobalt [Co]</b>	
EL (Canada)	0.02 mg/m <sup>3</sup> ;
EV (Canada)	IARC 2B
PEL (OSHA USA)	0.1 mg/m <sup>3</sup>
REL (USA)	0.1 mg/m <sup>3</sup>
TLV (USA)	as Co; *for metal dust and fume, as Co
	0.05 mg/m <sup>3</sup>
	inorg. cmpds.: *metal dust and fume, as Co
	0.02 mg/m <sup>3</sup>
	as Co; BEI
<b>Control Parameters</b>	Ingredients with biological limit values
<b>7440-48-4 Cobalt [Co]</b>	
BEI (USA)	15 µg/L
	Medium: urine
	Time: end of shift at end of workweek
	Parameter: Cobalt (background, semi-quantitative)
Additional Information: The lists that were valid during the creation were used as basis.	



(8b) Exposure Controls (Personal Protective Equipment)	
<b>General Protective and Hygienic Measures</b>	Use personal protection equipment when required. Use good personal hygiene practices. Keep magnetized parts away from mechanical/electrical instruments which may be damaged by high magnetic fields. Keep away from foodstuffs, beverages and feed. Wash hands before breaks and at the end of shift. Avoid contact with the eyes and skin.
<b>Breathing Equipment</b>	In the case of dust formation (limit value exceeded), breathing apparatus must be worn (NIOSH approved). Time limits for wearing must be observed.
<b>Breathing Mask, (Apparatus w/ Particle Filter P2/P3)</b>	Full face mask (EN 136) Breathing mask (EN149) FFP2 or FFP3 10 times the limit value (FFP2) 30 times the limit value (FFP3) Recommendation: P3
<b>Ventilation</b>	Use wet machining/grinding processes and adequate local ventilation to reduce dust levels.
<b>Protection of Hands</b>	Avoid repeated and prolonged contact with the skin, use protective gloves, especially when handling magnetized parts or parts which may have sharp edges. Preventive skin protection by use of skin-protecting agents is recommended.
<b>Material of Gloves</b>	Experience has shown glove materials polychloroprene, nitrile caoutchouc, butyl caoutchouc, fluoride caoutchouc and polyvinylchloride to offer sufficient protection.
<b>Eye Protection</b>	Safety goggles (EN166), with side shields if necessary, must be worn in dusty environments and when working with magnetized magnets (> 50 g).
<b>Limitation &amp; Supervision of Exposure into Environment</b>	Please follow national, state and local regulations.

(9) Physical and chemical properties	
<b>General information</b>	The physical and chemical properties of this section refer to the un-plated permanent magnet alloy. No values are available for the coating itself.
<b>Appearance</b>	Form: parts Color: Metallic Odor: odorless
<b>pH value:</b>	Not applicable
<b>Change in Condition (Melting point)</b>	1220-1320°C (2228-2408°F)
<b>Evaporation Rate</b>	Not determined
<b>Auto Igniting</b>	Omitted (in the provided form). See Section 2 and/or 7.
<b>Danger of Explosion</b>	Omitted (in the provided form). See Section 2 and/or 7.
<b>Vapor Pressure (mm Hg)</b>	Not determined
<b>Density (approx.) at 20°C</b>	8.3 g/cm <sup>3</sup>
<b>Relative Density</b>	Not determined
<b>Solubility in/Miscibility with Water:</b>	Insoluble
<b>Solubility in Acid</b>	Soluble



(10) Chemical Stability and Reactivity	
<b>Thermal Decomposition/Conditions to be Avoided</b>	No decomposition if used according to specifications.
<b>Possibility of Hazardous Reactions</b>	Hydrogen is released in contact with acid which can cause explosive gas mixtures.
<b>Conditions to Avoid</b>	Avoid exposure of powdered magnet material to air, oxygen or halogenated hydrocarbons and to elevated temperatures above 150° C. Do not use or store in conditions as follows: acidic, alkaline or electrically conductive liquids, corrosive gases.
<b>Incompatible Materials</b>	Fine powders are incompatible with air, oxygen, halogenated hydrocarbons with strong oxidizers. Avoid acids and other oxidizing agents.
<b>Hazardous Decomposition Products</b>	No dangerous decomposition products known

(11) Toxicological Information	
Acute toxicity LD/LC50 values	The following applies for the pure substance
7440-48-4 Cobalt	
Oral	LD50 6170 mg/kg (rat)
Primary irritant effect: Cobalt in the form of inhalable dust can lead to hypersensitization when inhaled. Also it is possible the sensitization develops if the surface is chromated and if repeated and extended skin contact with this chromated surface occurs.	<i>On the skin:</i> Irritant to skin and mucous membranes. Rare earths (section 2) cause skin irritation depending on grain size (powder) (Skin Irrit 2) see sensitization. <i>On the eye:</i> Rare earths (section 2) cause eye irritation depending on grain size (powder) (Eye Irrit. 2) <i>Sensitization:</i> in the case of repeated and prolonged contact with the skin with metallic cobalt there is a possibility of sensitization.
Subacute to chronic toxicity	In certain countries, cobalt in the form of inhalable dust is classified as category 3 carcinogenic.
Additional toxicological information	When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.
Carcinogenic categories	IARC (International Agency for Research on Cancer)
7440-48-4	Cobalt   2B
NTP (National Toxicity Program)	None of the ingredients is listed

(12) Ecological Information	
<b>Toxicity</b>	
<b>Aquatic Toxicity</b>	No further relevant information available
<b>Persistence and Degradability</b>	No further relevant information available
<b>Behavior in Environmental Systems</b>	
<b>Bioaccumulative Potential</b>	No further relevant information available
<b>Mobility in Soil</b>	No further relevant information available
<b>Results of PBT and vPvB Assessment</b>	Not applicable
<b>Other Adverse Effects</b>	No further relevant information available



(13) Disposal Considerations	
<b>Waste Treatment Methods</b>	
<b>Recommendation</b>	Observe official regulations. Disposal must be in accordance with applicable federal, state and local law and regulations, if any.
<b>Uncleaned packaging</b>	Not applicable
<b>Spill Procedure</b>	Sweep up dust and store in water slurry or sealed containers utilizing inert atmosphere such as argon or nitrogen to prevent spontaneous combustion.

(14) Transport Information	
<b>Transport/Additional Information</b>	
<b>Land transport DOT/TDG Remarks</b>	Non-hazardous goods from the standpoint of the specified regulations. ATTENTION: Packing boxes with magnetized parts inside generate magnetic fields and are able to attract magnetizable materials.
<b>Maritime transport IMDG Remarks</b>	Non-hazardous goods from the standpoint of the specified regulations. ATTENTION: Packing boxes with magnetized parts inside generate magnetic fields and are able to attract magnetizable materials.
<b>Air transport ICAO-TI and IATA-DGR</b>	<p>Non magnetized parts: Not classified as hazardous goods as understood in the ordinance given.</p> <p>Magnetized parts in packaging units: Conduct test for classification as per IATA regulations (see Class 9/Packing Instruction 902)</p> <p>If test is positive, the following apply:            ICAO/IATA class: Class 9/Page 172            UN/ID number: 2807            Correct technical name: Magnetized materials</p>

(15) Regulatory Information			
<b>Safety, health and environmental regulations/legislation specific for the substance or mixture</b>			
<b>SARA Section 355 (extremely hazardous substances):</b>	None of the ingredients is listed		
<b>Section 313 (Specific toxic chemical listings)</b>	7440-48-4	Cobalt	
<b>TSCA (Toxic Substances Control Act):</b>	All ingredients are listed		
<b>Proposition 65 (chemicals known to cause cancer)</b>	7440-48-4	Cobalt	
<b>Chemicals known to cause reproductive toxicity</b>	Females: None of the ingredients is listed Males: None of the ingredients is listed		
<b>Chemicals known to cause developmental toxicity</b>	None of the ingredients is listed		
<b>Cancerogenity categories</b>			
<b>EPA (Environmental Protection Agency)</b>	None of the ingredients is listed		
<b>IARC (International Agency for Research on Cancer)</b>	7440-48-4	Cobalt	2B, 2A
<b>NTP (National Toxicology Program)</b>	None of the ingredients is listed		
<b>TLV (Threshold Limit Value established by ACGIH)</b>	7440-48-4	Cobalt	A3
<i>Continued on next page</i>			



<b>MAK (German Maximum Workplace Concentration)</b>	7440-48-4	Cobalt	2
<b>NIOSH-Ca (National Institute for Occupational Safety and Health)</b>	None of the ingredients is listed		
<b>OSHA-Ca (Occupational Safety &amp; Health Administration)</b>	None of the ingredients is listed		
<b>National regulations:</b>			
<b>Other regulations, limitations and prohibitive regulations</b>	Guidelines 67/548/ECC, 1999/45/EC 1272/2008/EG (CLP) 1907/2006/EG (REACH) German Hazardous Substances		
<b>PLEASE NOTE:</b>	Magnetized parts generate magnetic fields and are able to attract magnetizable materials. This may result in injury during handling of magnets. Electronic devices and measure tools may be changed in calibration or damaged by the high magnetic field strength. Please keep magnetized magnets away from computers, displays and magnetic storage devices. Especially people with heart pacemakers must keep away from magnetic fields.		
<b>Chemical Safety Assessment</b>	VOID (for articles)		

(16) Other Information		
The information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.		
Relevant phrases (Wording of safety instructions quoted <section 3> concerning pure substances (powder).	H228 H315 H317 H319 H334  H413	Flammable solid Cause skin irritation May cause an allergic skin reaction Cause serious eye irritation May cause allergy or asthma symptoms or breathing difficulties. May cause long lasting harmful effects to aquatic life.
	R11 R36/38 R42/43 R53	Highly flammable Irritating to eyes and skin May cause sensitization by inhalation and skin contact May cause long-term adverse effects in aquatic environment.
Department issuing MSDS		
Contact		
Abbreviations and acronyms	IMDG: International Maritime Code for Dangerous Goods IATA : International Air Transport Association ICAO: International Civil Aviation Organization ACGIH : American Conference of Governmental Industrial Hygienists LC60: Lethal Concentration, 50% LD50: Lethal Dose, 50 %	
Sources		