

## Material Safety Data Sheet Vulcanised Natural Rubber (38-60 duro)

### Section 1: Material Identification and Use

<b>Material Name</b>	All Natural Rubber Grades (TSR & SMR)
<b>Source</b>	Asian Rubber Plantations
<b>Chemical Name</b>	Cis 1,4 Polyisoprene (CAS No. 9003-31-0)
<b>Chemical Family</b>	Diene
<b>Chemical Formula</b>	(C <sub>5</sub> H <sub>8</sub> ) <sub>n</sub>
<b>Molecular Weight</b>	C <sub>a</sub> 10 6
<b>Material Use</b>	Engineered Rubber Products
<b>Supplier's Name</b>	Vulcanite Pty Ltd
<b>Street Address</b>	Unit N1, 391 Park Road, Regents Park, NSW, 2143, Australia
<b>Telephone</b>	+61 2 8889 3999 (08:00 – 17:00 hours)

### Section 2: Hazards Identification

#### NOT CLASSIFIED AS HAZARDOUS ACCORDING TO CRITERIA OF WORKSAFE AUSTRALIA

Flammable and does not self-extinguish.

Products of combustion are low toxicity but may cause irritation to eyes or if inhaled. Carbon monoxide and carbon dioxide are generated when burnt.

Not recommended for use with food stuffs or pharmaceutical goods.

### Section 3: Composition & Ingredients

#### (a) Non-hazardous Ingredients

Natural Rubber (polyisoprene) polymer and Carbon Black reinforced.

Stearic acid and zinc oxide activation.

Amine derivative antioxidants and antiozonants.

Organic accelerators in combination with sulphur for conventional curing.

#### (b) Hazardous Ingredients

None

### Section 4: First Aid Measures

<b>Skin</b>	In the event of skin contact with hot compound or decomposition products, immediately cool skin rapidly with cold water and wash off with soap and water.
<b>Eye</b>	In the event of eye contact with fumes, irrigate with plenty of water
<b>Inhalation</b>	Remove to fresh air if exposed to fumes, decomposition products or high temperature emitted vapours. Seek medical treatment in cases of extreme exposure.
<b>Ingestion</b>	Seek medical assistance in event product consumed.
<b>General Advice</b>	Handling of solid rubber is not a serious health hazard and does not require special first aid facilities. If in doubt, seek medical assistance

### Section 5: Fire and Explosion Hazard of Material

<b>Flammability</b>	Yes	<b>Flammability Conditions</b>	Heat; Oxidation
<b>Extinguishing Media</b>	Water, foam, carbon dioxide, dry chemical		
<b>Flashpoint</b>	> 250°C	<b>Auto Ignition Temp.</b>	> 250°C
<b>Upper Explosion Limit</b>	unknown	<b>Lower Explosion Limit</b>	unknown
<b>Rate of Burning</b>	varies	<b>TDG Flammability Classification</b>	unknown
<b>Explosive Power</b>	unknown	<b>Sensitivity to Static Discharge</b>	unknown
<b>Hazardous Combustion Products</b>	Carbon Monoxide and Carbon Dioxide. Complex fumes derive from decomposition products of organic accelerators, antioxidants, activators, plasticizers and process aids.		
<b>Special Protective Precautions</b>	Rubber fire is difficult to extinguish since the heat may soften the rubber and burning material liquefies and may spread fire.		
<b>Equipment for Fire Fighters</b>	Wear a self-contained breathing apparatus with full-face piece operated in pressure demand or positive pressure mode, and protective suit.		

### Section 6: Accidental Release Measures

Normal manual handling with mechanical assistance if necessary.  
Personal protective equipment should be worn as per Section 8.

### Section 7: Handling & Storage

<b>Engineering Controls</b>	Ventilate during moulding and curing.
<b>Handling Procedure &amp; Equipment</b>	When moulding, extruding and curing natural rubber compounds, operate at temperatures as low as practicable, in consideration of hazards and economic throughput. Sufficient local exhaust ventilation must be provided to ensure safe working. Do not consume food when handling compound, avoid inhalation of curing fume and vapours.
<b>Storage Requirements</b>	Store in a cool place (<25°C). Avoid heat, direct sunlight and contact with oxidation catalysts, oils, acids and other chemicals. Store away from sources of heat or ignition.

### Section 8: Exposure Controls & Personal Protection

<b>Skin Protection</b>	Gloves should be worn at all times, but especially if handling hot compound.
<b>Eye Protection</b>	May be necessary if particles of rubber are generated during processing, or if fumes are present.
<b>Respiratory Protection</b>	<p>Volatile materials may be evolved from rubber compounds during cure and, in general, the higher the temperature, the more concentrated are the fumes in the surrounding atmosphere.</p> <p>The composition of rubber fumes is complex but emissions from Natural Rubber compounds are known to contain Carbon Dioxide, Water, and traces of Nitrosamines and Polycyclic Aromatic Hydrocarbons from some accelerators and petroleum based oils and resins.</p> <p>The C.O.S.H.H. regulations of 1988 state that rubber fumes be contained within a maximum exposure level, M.E.L., of 0.75 mg/m<sup>3</sup> measured by personal operator sampling, and expressed as an 8 hour time weighted average. This limit has now been reduced to 0.6 mg/m<sup>3</sup> since January 1990.</p> <p>When mixing, moulding, extruding and curing natural rubber compounds, operate at temperatures as low as is reasonably compatible with economic throughput. Sufficient local exhaust ventilation must be provided at processing centres to ensure compliance with the regulations and the protection and safe working of process operators.</p>

### Section 9: Physical & Chemical Properties

<b>Physical State</b>	Solid	<b>Odour</b>	Slight (rubber)
<b>Appearance</b>	Black	<b>Specific Gravity</b>	1.01 – 1.14
<b>Odour Threshold</b>	Not Relevant	<b>pH</b>	Not Relevant
<b>Evaporative Rate</b>	Not Relevant	<b>% Volatile (by Volume)</b>	<0.5
<b>Vapour Pressure</b>	Not Relevant	<b>Vapour Density</b>	Not Relevant
<b>Boiling Point</b>	Not Relevant	<b>Freezing Point</b>	Not Relevant
<b>Viscosity</b>	Solid @ 25°C	<b>Water/Oil Distribution</b>	N/A
<b>Solubility</b>	Insoluble in water; soluble in petroleum based solvents		

### Section 10: Stability & Reactivity

<b>Chemical Stability</b>	Product is stable in cool well ventilated conditions up to 70°C
<b>Incompatibility with Other Substances</b>	Heavy metals (e.g., copper) act as pre-oxidants
<b>Reactivity and Under What Conditions</b>	Starts to decompose above 220°C, finally emitting vapours which may be toxic and flammable at temperatures > 300°C
<b>Hazardous Decomposition Products</b>	Carbon monoxide, aliphatic and aromatic oils and tars, coupled with some sulphur, and also amine, based organic compounds.

### Section 11: Toxicological Properties of Natural Rubber

<b>Route of Entry</b>	Ingestion		
<b>Effects of Accute Exposure</b>	Unknown, but avoid ingestion		
<b>Effects of Chronic Exposure</b>	Unknown, but avoid ingestion		
<b>LD<sub>50</sub> (Route)</b>	Unknown	<b>Irritancy</b>	Unknown
<b>LD<sub>50</sub> (Species)</b>	Unknown	<b>Exposure Limits</b>	Unknown
<b>Sensitisation</b>	Unknown	<b>Synergistic Materials</b>	Unknown

### Section 12: Ecological Information

<b>Ecotoxicity</b>	No data available.
<b>Persistence and Degradability</b>	No information available, but expected to be persistent (not readily degradable)
<b>Mobility</b>	Insoluble solid – not mobile.

### Section 13: Disposal

<b>Methods and Materials for Containment and Clean Up</b>	Sweep up material and dispose of appropriately.
<b>Waste Disposal</b>	Dispose of by landfill or incineration, according to local regulations. Reclaim

### Section 14: Transport Information

Non-hazardous for transport – no labelling required.  
Not classified for DOT, IATA or IMDG.

### Section 15: Regulatory Information

None required.

### Section 16: Other Information

<b>Prepared by</b>	Vulcanite Pty Ltd
<b>Phone Number</b>	+61 2 8889 3999
<b>Date Reviewed</b>	August 12, 2014

#### DISCLAIMER

This material Safety Data Sheet has been developed according to NOHSC guidelines. It is believed that the information given in this MSDS is accurate at this date. The information and recommendations made herein are offered in good faith and without acceptance of responsibility for its accuracy. VULCANITE PTY LTD recommends that all users of this product satisfy themselves that it is used in an appropriate manner and is suitable for the use intended. No representations or warranties of any kind, expressed or implied, are given.