

PRODUCT SPECIFICATION: SPE. 0010

Section 1 – GENERAL	
Product Name:	Tiger Manganese®
Description:	Tiger Manganese® is a high analysis granular degradable sulphur product that can be used both as a source of plant nutrient sulphur and manganese and / or as a soil amendment for correction of problem alkali soils. Yearly applications of Tiger Manganese® will improve soil sulphur levels as well as loss associated with nutrients that are soluble. Tiger Manganese® is a unique, high analysis sulphur fertilizer that delivers agronomically and economically, and provides excellent handling characteristics.
Physical Properties:	<p>Colour: Grey to black pastilles</p> <p>Fertilizer Prill Size: 260 SGN</p> <p>Angle of Repose: 29 Degrees</p> <p>Breakage Test (% Fines Produced) <0.5%</p> <p>Specific Gravity 2.07 g/ml</p> <p>Package Sizing 25 kg bag or 1000 kg bulk bag</p>
Toxicity:	Sulphur is moderately toxic (Rating 3 according to "Clinical Toxicology of Commercial Products") with a probable lethal dose to humans of 0.5 to 5 g/kg body mass.
Hazards:	The material may burn when exposed to heat and flames, emitting toxic fumes of oxides of sulphur. The dust presents a dangerous explosion hazard if suspended in the atmosphere. May cause severe eye irritation as well as irritation to the skin and respiratory tract.

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Special Precautions:	Store away from heat, naked flames and oxidising agents such as ammonium nitrate. Maintain stringent dust control procedures to prevent concentrated flammable dusts from reaching a spark or flame source. Avoid extensive use of augers due to fracturing of the product.																		
Statutory Aspects:	<p>Occupational Health and Safety Act, No 85 of 1993. Not regulated as hazardous material</p> <p>Maximum Levels of Potentially Harmful Elements (according to act 36 of 1947)</p> <table border="1" data-bbox="715 1003 1185 1352"> <thead> <tr> <th>Element</th> <th>Mg/kg</th> </tr> </thead> <tbody> <tr> <td>Cadmium</td> <td>20</td> </tr> <tr> <td>Chromium</td> <td>1750</td> </tr> <tr> <td>Mercury</td> <td>10</td> </tr> <tr> <td>Nickel</td> <td>200</td> </tr> <tr> <td>Lead</td> <td>400</td> </tr> <tr> <td>Zinc</td> <td>2750</td> </tr> <tr> <td>Arsenic</td> <td>20</td> </tr> <tr> <td>Selenium</td> <td>15</td> </tr> </tbody> </table>	Element	Mg/kg	Cadmium	20	Chromium	1750	Mercury	10	Nickel	200	Lead	400	Zinc	2750	Arsenic	20	Selenium	15
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Section 2 – SPECIFICATION

Appearance	Grey to black pastilles
Mean Particle Size	2.4 – 3.2 mm
Uniformity Index	Not less than 50%
Micronutrient Content Manganese	15% ± 0.75 %

Section 3 – PLANT EVALAUTION AND USES

The nutrient manganese oxide is weighed and fed into a mix tank. In the mix tank

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the solid particles are mixed with molten sulphur at predetermined recipes.

Section 4 – PURCHASING AND SUPPLIER SPECIFICATION

The material is available in 1000kg and 25kg bags conforming to the most recent issue of Chemical Initiatives Packaging Specification No. RMS.PAK0022 and RMS.PAK0023 respectively.

Section 5 – TESTING

The material is sampled and tested according to the most recent editions of the Sampling, Testing and Reporting Schedule.

<u>PARAMETER</u>	<u>METHOD NO.</u>
3.1 Burn Test	Burn Test Procedure no. 8 (Tiger Industries)
3.2 Particle size tests	AECI G 01/4A
3.3 Micronutrient Content	Umbog No. 161

This product is manufactured and tested at Chemical Initiatives Umbogintwini Factory.

Section 6 – USES

Tiger Manganese® is used as a source of plant nutrient sulphur and manganese.
Tiger Manganese® is used for soil amendment for correction of problem alkali soils.

Section 7 – DOCUMENTATION

This specification is based on information from Tiger- SUL (USA and Canada) and Chemical Initiatives Umbogintwini Factory.

Section 8 – REASON FOR REVISION

Revision 1 – new document

Revision 2 -August 2013 – New template

Revision 3 – November 2013- Maximum Levels of Potentially Harmful Elements