



## MILLERS AND PROCESSORS OF BASE MINERALS

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### DATA SHEET

**Manganese Umber**  
Grade: Export  
Use: Ceramic pigment.



#### Chemical Analysis (%):

Typical:	Mn/Fe ratio:	4.8:1			
	Mn	43 - 47%			
	Fe	9% - 13%	Mn	→	MnO x 1.291
	SiO <sup>2</sup>	4% - 6%	Mn	→	MnO <sub>2</sub> x 1.582
	Al <sub>2</sub> O <sub>3</sub>	0.2% - 0.33%	Mn	→	Mn <sub>3</sub> O <sub>4</sub> x 1.3883
	Cl	0.01%			
	S	0.1% - 0.2%	MnO	→	Mn x 0.7746
	CaO	5% - 7%	MnO <sub>2</sub>	→	Mn x 0.6319
	MgO	0.45% - 1.3%	Mn <sub>3</sub> O <sub>4</sub>	→	Mn x 0.7203
	K <sub>2</sub> O	0.01% - 0.05%			
	BaO	0.3% - 0.5%			
	NA <sup>2</sup> O	0.05% - 0.09%			

#### Physical Properties:

<b>Particle Size:</b>	+45 micron 3-4%l
<b>Moisture:</b>	+ -1%
<b>Bulk Density:</b>	1.53 – 1.55gm/cm <sup>2</sup> Tapped
<b>pH:</b>	8.2
<b>Solubility Test:</b>	500g Manganor Umber – 1000cc Water pH 8.24
	At 20°C : Day 1 – 8.75
	Day 3 – 8.31
	Day 7 – 8.35

#### Application:

Ceramic pigment.

#### Packaging:

40kg, 3-ply paper bags. 1 ton per pallet.  
Or  
1000/1500 kg polypropylene bulk bags

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