

## Typical Analysis

### TUNGSTEN

#### WOLFRAMITE CONCENTRATE

FORMULA: (Fe.Mn) WO4			Impurities (%)													
CODE #	GRADES	WO3 (% min)	S	P	As	Mo	Ca	Mn	Cu	Sn	SiO2	Fe	Sb	Bi	Pb	Zn
RM2201	Wolframite special 1-3	70	0.2	0.02	0.06	-	3.0	-	0.04	0.08	4.0	-	0.04	0.04	0.04	-
RM2202	Wolframite special 1-2	70	0.4	0.03	0.08	-	4.0	-	0.05	0.10	5.0	-	0.05	0.05	0.05	-
RM2203	Wolframite special 1-1	68	0.5	0.04	0.10	-	5.0	-	0.06	0.15	7.0	-	0.10	0.10	0.10	-
RM2204	Wolframite special 2-3	70	0.4	0.03	0.05	0.010	0.3	-	0.15	0.10	3.0	-	-	-	-	-
RM2205	Wolframite special 2-2	70	0.5	0.05	0.07	0.015	0.4	-	0.20	0.15	3.0	-	-	-	-	-
RM2206	Wolframite special 2-1	68	0.6	0.10	0.10	0.020	0.5	-	0.25	0.20	3.0	-	-	-	-	-
RM2207	Wolframite 1st Grade-1	65	0.7	0.05	0.15	-	5.0	-	0.13	0.20	7.0	-	-	-	-	-
RM2208	Wolframite 1st Grade-2	65	0.7	0.10	0.10	0.050	3.0	-	0.25	0.20	5.0	-	-	-	-	-

PACKING: In cloth or plastic bag with outer gunny bag of 50 kgs net each.

NOTE: The products of lal specifications are available, as well as the high quality products [S<0.2%. As<0.05%],in accordance with the customer's requirements.

#### SCHEELITE CONCENTRATE

FORMULA: CaWO4			Impurities (%)													
CODE #	GRADES	WO3 (% min)	S	P	As	Mo	Ca	Mn	Cu	Sn	SiO2	Fe	Sb	Bi	Pb	Zn
RM2301	Scheelite special 1-3	72	0.2	0.03	0.02	-	-	0.2	0.01	0.01	1.0	-	-	0.02	0.01	0.2
RM2302	Scheelite special 1-2	70	0.3	0.03	0.03	-	-	0.4	0.02	0.02	1.5	-	-	0.03	0.02	0.3
RM2303	Scheelite special 1-1	70	0.4	0.03	0.03	-	-	0.5	0.03	0.03	2.0	-	-	0.03	0.03	0.3
RM2304	Scheelite special 2-3	72	0.4	0.03	0.05	0.010	-	0.3	0.15	0.10	2.0	2	0.1	-	-	-
RM2305	Scheelite special 2-2	70	0.5	0.05	0.07	0.015	-	0.4	0.20	0.15	3.0	2	0.1	-	-	-
RM2306	Scheelite special 2-1	70	0.6	0.10	0.10	0.020	-	0.5	0.25	0.20	3.0	3	0.2	-	-	-
RM2307	Scheelite 1st Grade 1	65	0.7	0.05	0.15	-	-	1.0	0.13	0.20	7.0	-	-	-	-	-
RM2308	Scheelite 1st Grade 2	65	0.7	0.10	0.10	0.050	-	1.0	0.25	0.20	5.0	-	-	-	-	-

PACKING: In cloth or plastic bag with outer gunny bag of 50 kgs net each.

NOTE: The products of all specifications are available, as well as the high quality products [S 0.05% P 0.01% As 0.01%], in accordance with the customer's requirements.

### SYNTHETIC SCHEELITE

FORMULA: CaWO <sub>4</sub>			Impurities (%max)													
CODE #	Grades/Types	WO <sub>3</sub> (min %)	S	P	As	Mo	Mn	Cu	Sn	Si	Fe	Sb	Bi	Pb	Zn	H <sub>2</sub> O
RM2401	1st. -1	77	0.2	0.02	0.02	-	0.05	0.01	0.01	0.20	-	0.03	0.02	0.02	0.02	1.0
RM2402	-2	77	0.2	0.02	0.02	0.02	0.05	0.02	0.02	0.06	0.05	0.03	0.02	0.02	0.02	2.0
RM2403	2nd. -1	75	0.25	0.03	0.04	-	0.10	0.02	0.02	0.50	-	0.05	0.04	0.03	0.03	1.0
RM2404	-2	75	0.30	0.03	0.05	0.04	-	0.03	0.03	0.10	0.07	-	-	-	-	3.0

PACKING: In sealed plastic bag or glass-fibre bag of 50 kgs net each with outside gunny bag.

NOTE: Any particular requirements to the products can be discussed.

### TUNGSTIC ACID

FORMULA: H <sub>2</sub> WO <sub>4</sub>		Impurities (% max)											
CODE #	WO <sub>3</sub> (%min)	Al	As	Bi	Ca	Co	Cu	Fe	K	Mg	Mn	Mo	Na
RM2501	91	0.001	0.005	0.001	0.002	0.001	0.001	0.001	0.004	0.002	0.001	0.008	0.004
RM2502			V	Ni	Ti	P	Pb	S	Si	Sb	Sn	Roasting loss	
RM2503			0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.001	0.001	10	

PACKING: In iron drum with inner plastic bag of 50 kgs net each.

NOTE: Any particular requirements to the product can be met.

### SODIUM WOLFRAMATE

		FORMULA: Na <sub>2</sub> WO <sub>4</sub> * 2H <sub>2</sub> O	
Compositions (% max)			
CODE #	GRADES	Na <sub>2</sub> WO <sub>4</sub> *2H <sub>2</sub> O (%min)	Mo (%max)
RM2601	1	98	0.05
RM2602	2	95	0.1

PACKING: Iron drum with inner PVC bag of 50 kgs net each.

NOTE: Any particular requirements to product can be discussed.

### AMMONIUM PARATUNGSTATE

FORMULA: 5(NH <sub>4</sub> ) <sub>2</sub> O * 12WO <sub>3</sub> * 5H <sub>2</sub> O			Specification: (based on WO <sub>3</sub> )									
Compositions												
CODE#	GRADES	WO <sub>3</sub> (%min)	Impurities (ppm max)									
			Fe	Al	Si	Mg	Ca+K	Na	As	Mo	S	P
RM2701	APT-1	88.5	10	5	20	5	20	10	9	20	7	7
RM2702	APT-2	88.5	10	10	25	10	50	30	15	50	10	10
RM2703		Bi	Cd	Cr	Cu	Mn	V	Ni	Pb	Sn	Sb	Ti
RM2704	APT-1	1	1	5	5	5	10	5	1	1	5	5
RM2705	APT-2	1	1	7	7	7	13	7	2	1	10	7

PACKING: Iron drum with inner plastic bag of 50 kgs or 200 kgs net each.

NOTE: Any particular requirements to the products can be discussed.

### AMMONIUM METATUNGSTATE

FORMULA: (NH <sub>4</sub> ) <sub>6</sub> H <sub>2</sub> W <sub>12</sub> O <sub>40</sub> * xH <sub>2</sub> O										
Compositions (%max)		WO <sub>3</sub> (%min)	Impurities (ppm max)				Water Solubility			
CODE#	GRADES		SO <sub>4</sub> =	Cl-	Mo	pH				
RM2801	AMT-1	85	0.04	0.01	0.01	3.0-4.0	154g /100ml/H <sub>2</sub> O			
RM2802	AMT-2	83	0.04	0.05	0.02	3.0-4.0	154g/100ml/H <sub>2</sub> O			

PACKING: Iron drum with inner plastic bag of 50 kgs net each.

NOTE: Any particular requirements can be discussed.

### INDUSTRY TUNGSTEN TRIOXIDE

FORMULA: WO <sub>3</sub>		Impurities (% max)						
CODE #	WO <sub>3</sub> (% min)	Mo	As	P	S	Chlorinated Residue	Fe <sub>2</sub> O <sub>3</sub> +Al <sub>2</sub> O <sub>3</sub>	Roasting Loss
RM2901	99.5	0.10	0.015	0.025	0.015	0.10	0.04	0.50

PACKING: Iron drum with inner sealed plastic bag of 50 kgs net each.

NOTE: Any particular requirements to the product can be discussed.

### CHEMICAL PURE TUNGSTEN TRIOXIDE

Composition (% max)		WO <sub>3</sub> (%min)	Impurities (ppm max)													
CODE #	GRADES		Fe	Al	Si	Mg	Ca	K	Na	As	Mo	S	P	Bi	Cd	Co
RM3001	WO <sub>3</sub> -1	99.98	10	5	10	5	10	10	10	10	20	7	7	1	5	10
RM3002	WO <sub>3</sub> -2	99.97	20	10	20	10	20	15	20	15	50	10	10	1	-	-
RM3003	WO <sub>3</sub> -3	99.9	100	20	70	10	100	20	50	50	150	50	50	3		
			Cr	Cu	Mn	V	Ni	Pb	Sn	Sb	Ti					
			10	5	5	10	5	1	1	2	10					
			-	10	10	-	7	1	1	5	-					
							10			10						
			Chloride Residue (%max)		Calcined Loss (% max)		Apparent Density (g/cm <sup>3</sup> )		F.S.S.S. (u)							
			-		<_ 0.5		2.0-2.8		7--16							
			-		<_ 0.5		2.0-2.8		7--16							
			0.05		<_ 0.5		0.5-1.0		0.5-2.0							

PACKING: Iron drum with inner sealed plastic bag of 50 kgs net each.

NOTE: Any particular requirements to the product may be discussed.

**BLUE TUNGSTEN OXIDE**
**FORMULA: WO<sub>2.90-2.97</sub>**

Compositions (%max)		Purity	Impurities (ppm max)								
CODE #	GRADES		K	Na	Fe	V	Ti	Co	Pb	Bi	Sn
RM3101	LWOX-1	99.97	15	15	10	15	15	15	1	1	1
RM3102	LWOX-2	99.95	15	15	20	15	15	15	1	1	1
		<b>Mo</b>	<b>As</b>	<b>S</b>	<b>Al</b>	<b>Ca</b>	<b>Si</b>	Roasting loss (%)		<b>F.S.S.S.</b>	
		30	10	5	10	10	10	<_ 0.3		10-18u	
		60	20	5	10	20	20	<_ 0.5		10-18u	

 APPARENT DENSITY: 2.0- 2.6g/cm<sup>3</sup>

PACKING: Iron drum with inner sealed plastic bag of 50 kgs net each.

NOTE: Any particular requirements to the product can be discussed.

**TUNGSTEN POWDER**
**FORMULA: W**

CODE #	TYPES	Fsss.size (u)	Apparent density (g/cm <sup>3</sup> )		O <sub>2</sub> (%max)				
RM3201	W-1	<_ 1.00	1.7-2.5		0.40				
RM3202	W-2	1.01-1.50	2.0-2.8		0.30				
RM3203	W-3	1.51-2.00	2.2-3.0		0.30				
RM3204	W-4	2.01-3.00	2.6-3.5		0.25				
RM3205	W-5	3.01-4.00	3.2-4.2		0.25				
RM3206	W-6	4.01-5.50	3.8-4.8		0.25				
RM3207	W-7	5.51-7.00	4.0-5.2		0.20				
RM3208	W-8	7.01-15.00	4.2-5.5		0.20				
RM3209	W-9	15.01-25.00	4.5-6.5		0.10				
<b>Impurities (ppm max)</b>									
CODE #	W (%min)	Pb	Bi	Sn	Sb	As	Mo	Fe	Al
RM3210	99.95	1	1	1	5	10	50	30	20
RM3211	99.8	5	5	5	10	20	100	100	50
		Cu	Ni	Mg	Ca	Si	P	K	Na
		10	30	10	30	30	10	20	20
		-	50	20	50	100	50	30	30

PACKING: Iron drum with inner sealed plastic bag of 50 kgs net each.

NOTE: Any particular requirements to the products can be discussed.

**TUNGSTEN**
**NON-FERROUS METALS**

**TUNGSTEN CARBIDE POWDER**

			FORMULA: WC								
CODE #	GRADES	Fsss size(u)				Apparent density (g/cm3)	C Total (%)	C Free (%max)			
RM3301	WC-1	<_1.0				1.5-2.2	6.08-6.18	0.08			
RM3302	WC-2	1.01-1.50				1.7-2.5	6.08-6.18	0.08			
RM3303	WC-3	1.51-2.00				2.0-2.8	6.08-6.18	0.08			
RM3304	WC-4	2.01-2.50				2.2-3.0	6.08-6.18	0.08			
RM3305	WC-5	2.51-3.50				2.8-3.8	6.08-6.18	0.08			
RM3306	WC-6	3.51-5.00				3.6-5.0	6.08-6.18	0.08			
RM3307	WC-7	5.01-7.00				4.5-6.2	6.08-6.18	0.08			
Impurities (% max)											
CODE #	GRADES	Fe	Mo	Al	Si	Ca	Mn	Mg	Cr	Ni	Na
RM3308	FWC-1	0.04	0.01	0.001	0.01	0.005	0.002	0.002	0.01	0.006	0.002
RM3309	FWC-2	0.06	0.015	0.002	0.01	0.008	0.002	0.004	0.01	0.008	0.003

PACKING: Iron drum with inner sealed plastic bag of not more than 50 kgs net each.

NOTE: Any particular requirements to the products can be discussed.

**CASTING TUNGSTEN CARBIDE**

CODE #	GRADES	W(%)	C Total (%)	C Free (%max)	Particle Size (mesh)
RM3401	Yz-2	95-96	3.9+_0.1	0.08	20-30
RM3402	Yz-3	95-96	3.9+_0.1	0.08	30-40
RM3403	Yz-4	95-96	3.9+_0.1	0.08	40-60
RM3404	Yz-5	95-96	3.9+_0.1	0.08	60-80

PACKING: In Iron drum with plastic bag inside of 50 kgs net each.

NOTE: Any particular requirements to the products can be discussed.

**TUNGSTEN SLIMES**

CODE #	GRADES	WO3 (%min)	Impurities (% max)		
			S	As	Mo
RM3501	1	25	1.00	0.20	0.03
RM3502	2	25	1.50	0.25	0.05
RM3503	3	25	2.00	0.32	0.11

PACKING: In cloth bag or plastic bag with outer gunny bag of 50 kgs net each.

NOTE: Any particular requirements to the products can be discussed.

**CASTING TUNGSTEN CARBIDE IN TUBES**

CODE #	GRADES	Particle size (mesh)	Large per Tube	Tube Weight (g)	Tube specifications (mm)	
					Outer diameter(mm)	Length
RM3601	YZ-2	20-30	65-70	40-45	7+ <sub>-0.5</sub>	390+ <sub>-5</sub>
RM3602	YZ-3	30-40	51-53	33-35	6+ <sub>-0.5</sub>	390+ <sub>-5</sub>
RM3603	YZ-4	40-60	40-41	25-26	5+ <sub>-0.5</sub>	390+ <sub>-5</sub>
RM3604	YZ-5	60-80	27-29	17-21	4+ <sub>-0.5</sub>	390+ <sub>-5</sub>

PACKING: In wooden case with plastic box inside, 40 kgs net each.

NOTE: Any particular requirement may be discussed.

**CEMENTED CARBIDE GRANULES**

CODE #	GRADES	WC(%)	Co(%)	Size (mesh)		
				10--20	14--20	20--30
RM3701	YQ-1	_>85	14-5	10--20	14--20	20--30
RM3702				30--40		
RM3703	YQ-2	_>90	9.5-10	10--20	14--20	20--30
RM3704				30--40		
RM3705	YQ-3	_>93	6.5-7	10--20	14--20	20--30
RM3706				30--40		
RM3707	YQ-4	96+ <sub>-0.5</sub>	3.5-4	10--20	14--20	20--30
RM3708				30--40		
RM3709		WC+(W.T) C				
RM3710	YQ-11	_>90.5	8.9-9.5	10--20	14--20	20--30
RM3711				30--40		
RM3712	YQ-12	_>91.5	7.7-8.3	10--20	14--20	20--30
RM3713				30--40		

PACKING: Iron drum with plastic bag inside 50 kgs net each.

NOTE: Any particular requirements may be discussed.

**CEMENTED CARBIDE INDEXABLE INSERTS**

GB(ISO)	CODE #	CN15	CN25	CN35	CA15	CA25		
TNUN	RM3801	110304	110304		110304			
		110308	110308	110308	110308	110308		
		160408	160408	160408	160408	160408		
		160412	160412	160412	160412	160412		
		220412	220412	220412	220412	220412		
		220416		220416	220416	220416		
TNGN	RM3802	110304			110304			
		160408			160408			
		160412			160412			
		220412			220412			
TPUN	RM3803	160308	160308	160308	160308	160308		
		160312	160312	160312	160312	160312		
		220412	220412	220412	220412	220412		
		220416	220416	220416	220416	220416		
		270604	270604	270604	270604	270604		
TPGN	RM3804	160308	160308	160308	160308	160308		
		160312			160312			
		220412			220412			
SNUN	RM3805	60308			60308			
		90304			90304			
		90308	90308		90308	90308		
		120408	120408		120408	120408		
		120412	120412		120412	120412		
		150412	150412		150412	150412		
		150416	150416		150416	150416		
		190412	190412		190412	190412		
		190416	190416		190416	190416		
SNGN	RM3806	90308			90308			
		120408			120408			
		120412			120412			
		150412			150412		150412	
SPUN	RM3807	60308			60308			
		90312			90312		90312	
		120308			120308		120308	120308
		120312			120312		120312	120312
		150412			150412		150412	150412
		190416			190416		190416	190416
SPGN	RM3808	60308			60308			

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NON-FERROUS METALS

		90312	90312		90312	90312
		120308	120308	120308	120308	120308
		120312	120312	120312	120312	120312
<b>TPUR</b>	RM3809	110304			110304	
		160304	160304	160304	160304	160304
		220304	220304	220304	220304	220304
		220308	220308	220308	220308	220308
<b>TPGR</b>	RM3810	110204			110204	
		160304	160304	160304	160304	160304
		220304	220304	220304	220304	220304
		220308	220308	220308	220308	220308
<b>SPUR</b>	RM3811	90304		90304	90304	90304
		90312		90312	90312	90312
		120304	120304	120304	120304	120304
		120308	120308	120308	120308	120308
		120312	120312	120312	120312	120312
<b>SPGR</b>	RM3812	90304		90304	90304	
		90312		90312	90312	
		120304	120304	120304	120304	120304
		120308	120308	120308	120308	120308
		120312	120312	120312	120312	120312
<b>TNMM</b>	RM3813	160408	160408		160408	160408
		160412	160412		160412	160412
		220408	220408	220408	220408	220408
		220412	220412	220412	220412	220412
		220416	220416	220416	220416	220416
		270612	270612	270612	270612	270612
		270616	270616	270616	270616	270616
<b>TNMG</b>	RM3814	160408	160408	160408	160408	160408
		160412	160412	160412	160412	160412
		220408	220408	220408	220408	220408
		220412	220412	220412	220412	220412
		220416	220416	220416	220416	220416
<b>TNMA</b>	RM3815	160408			160408	
		160412			160412	
		220408	220408	220408	220408	220408
		220412	220412	220412	220412	220412
		220416	220416	220416	220416	220416
<b>SNMM</b>	RM3816	120408	120408	120408	120408	120408
		120412	120412	120412	120412	120412
		190612	190612	190612	190612	190612
		190616	190616	190616	190616	190616
		220612	220612			220612

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NON-FERROUS METALS

		220616	220616		220616
			250716		250716

<b>SNMG</b>	RM3817	90308		90308	90308	
		120408	120408	120408	120408	120408
		120412	120412	120412	120412	120412
				190612		190612
				190616		190616
<b>SNMA</b>	RM3818	120408	120408	120408	120408	120408
		120412	120412	120412	120412	120412
		190612	190612	190612	190612	190612
		190616	190616	190616	190616	190616
				250724		250724
<b>DNMG</b>	RM3819	90300	90300		90300	90300
		120400	120400	120400	120400	120400
<b>DNMG</b>	RM3820	150608	150608	150608	150608	150608
		150612	150612	150612	150612	150612
		150616	150616	150616	150616	150616
			190612	190612		190612
			190616	190616		190616
<b>DNMA</b>	RM3821	150608	150608		150608	150608
		150612	150612		150612	150612
		150616	150616		150616	150616
		190612	190612	190612	190612	190612
		190616	190616	190616	190616	190616
<b>CNMG</b>	RM3822	120408	120408	120408	120408	120408
		120412	120412	120412	120412	120412
		160608	160608	160608	160608	160608
		160612	160612	160612	160612	160612
			190608	190608		190608
			190612	190612		190612
<b>CNMM</b>	RM3823	120403			120403	
		120412			120412	
		160608	160608		160608	160608
		160612	160612		160612	160612
		190608	190608	190608	190608	190608
		190612	190612	190612	190612	190612
<b>CNMA</b>	RM3824	120408			120408	
		120412			120412	
		160608	160608		160608	160608
		160612	160612		160612	160612
		190608	190608	190608	190608	190608
		190612	190612	190612	190612	190612

TUNGSTEN

NON-FERROUS METALS

#### OTHER CEMENTED CARBIDE PRODUCTS

1. YG20C grade cemented carbide for cold heading dies.
2. YNO5 and YN10 grade TiC-based cemented carbides. (P01-05, P05-P10, ISO.)
3. Ultra-fine grained YS2 grade carbide. (M30-40, K30-40, ISO.)
4. YM051, YM052 and YM053 for general use ultra-fine grained carbide.
5. YD15 fine grained carbide and YS milling carbide.
6. YTS25 carbide for milling steels.
7. YK25, YK20 mining grade carbide.
8. Forged GT35 grade steel-bond carbide.
9. YC35 new carbide for heavy cutting.
10. YD05 carbide with high wear-resistance.
11. YK125 mining carbide for tri-cone bits.
12. YDS15 carbide specially for milling cast iron.
13. YLN series wear-resistant and corrosion-resistant carbides.
14. Carbide straight bits, cross bits and button bits.
15. Cemented carbide tricone drill bits for oil-mining.
16. Cemented carbide drawing dies.
17. Anvils and high pressure cylinders made with cemented carbide.
18. Cemented carbide for mining and geological prospecting.

CODE # RM3901-3918

TUNGSTEN

NON-FERROUS METALS

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