



Cobalt Brands Analysis

	VALE	TOC998	SMM998	SC9995	KCCL	KLK995	CASH	CASH (revised spec)	CMBA	CMBA (revised spec)	CMA	CMP	FC COARSE COBALT POWDER	NORNICKEL	HUAYOU	HUAYOU (revised spec)	AMBATOVY COBALT BRIQUETTES	MINARA COBALT BRIQUETTES	UMICORE COBALT POWDER SH																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Date Listed	18/04/2014	17/11/2009	23/11/2009	30/11/2009	18/01/2010	20/01/2010	04/05/2010	04/05/2010	26/05/2010	30/08/2010	29/08/2010	26/08/2010	22/12/2010	22/01/2010	16/07/2010	05/03/2010	12/11/2010	11/03/2010	13/10/2011																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Notch	12165	09418	09427	09434	10917	10938	10166	17241	15103	18217	13273	31274	16298	20227	19225	20058	19063	20063	21193																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Elements																					Al	0.0002	0.0010			0.002		0.003	0.001	0.002			0.0010	0.0010					0.002		0.005	As	0.0002				0.0005	0.0005	0.0005	0.0007										0.0007			Ba					0.0003	0.0003	0.0003	0										0.0003		0.005	C	0.0050	0.0050	0.01	0.005	0.012	0.007	0.005	0.005	0.0075	0.010	0.020	0.0100	0.1	0.01	0.0047		0.005	0.02	0.015	0.1	Ca		0.0010			0.005				0.0050	0.0050										0.005	Cd	0.0001	0.0025	0.0005	0.0003	0.005	0.0005	0.0003	0.005	0.0010	0.0010	0.0050	0.0015	0.001	0.0003	0.0005	0.0005	0.005	0.005	0.005	0.001	Co	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	Cr	0.0010				0.002				0.0020	0.0020										0.005	Cu	0.0002	0.0030	0.01	0.003	0.02	0.005	0.004	0.005	0.0050	0.0050	0.0050	0.0040	0.0015	0.005	0.0007	0.005	0.005	0.01	0.005	0.0015	Fe	0.0001	0.0100	0.01	0.004	0.02	0.006	0.005	0.006	0.010	0.010	0.0100	0.0050	0.001	0.005	0.0017	0.006	0.006	0.02	0.025	0.01	Mg		0.0010			0.002	0.005	0.002	0.001	0.002	0.002	0.0020	0.0030	0.0010					0.002		0.005	Mn	0.0001	0.0030	0.001	0.005	0.01	0.005	0.001	0.005	0.0030	0.0100	0.0100	0.0020	0.005	0.0001	0.0002	0.005	0.005	0.005	0.005	0.005	Ni	0.1	0.0005	0.10	0.002	0.00	0.005	0.005	0.01	0.003	0.003	0.0050	0.0400	0.005	0.05	0.0003	0.01	0.005	0.01	0.005	0.005	P	0.0003			0.001		0.002	0.001	0.001												0.005	Pb	0.0001	0.0020	0.001	0.0004	0.01	0.0005	0.001	0.0003	0.0050	0.0100	0.0060	0.0040	0.001	0.0003	0.0002	0.0005	0.005	0.005	0.005	0.001	S	0.0010	0.0050	0.001	0.001	0.008	0.002	0.001	0.001	0.007	0.010	0.0050	0.0050	0.04	0.001	0.0002	0.001	0.005	0.005	0.010	0.04	Sb	0.0004			0.0003		0.0005	0.0003	0.0006										0.0006			Se	0.0001																				Si		0.0010	0.001	0.003		0.003	0.001	0.003			0.0010	0.0010								0.005	Sn				0.0003		0.0005	0.0003	0.0003												0.005	Zn	0.0010	0.0025	0.002	0.002	0.01	0.003	0.001	0.002	0.0050	0.0050	0.0070	0.0050	0.001	0.0004	0.0002	0.002	0.005	0.005	0.005	0.001	Tons **	1500	1800	2000	4500	720	1200	1000	1000	2000	2000	8500	6500	8200	2000	2000	2000	4000	5400	3000		Shape *	R	BC	CC	CC	BC	CC	CC	CC	BC	BC	BC	BC	CCP	CC	CC	CC	BR	BR	BR	CCP
Al	0.0002	0.0010			0.002		0.003	0.001	0.002			0.0010	0.0010					0.002		0.005																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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C	0.0050	0.0050	0.01	0.005	0.012	0.007	0.005	0.005	0.0075	0.010	0.020	0.0100	0.1	0.01	0.0047		0.005	0.02	0.015	0.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Cd	0.0001	0.0025	0.0005	0.0003	0.005	0.0005	0.0003	0.005	0.0010	0.0010	0.0050	0.0015	0.001	0.0003	0.0005	0.0005	0.005	0.005	0.005	0.001																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Co	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Cu	0.0002	0.0030	0.01	0.003	0.02	0.005	0.004	0.005	0.0050	0.0050	0.0050	0.0040	0.0015	0.005	0.0007	0.005	0.005	0.01	0.005	0.0015																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Fe	0.0001	0.0100	0.01	0.004	0.02	0.006	0.005	0.006	0.010	0.010	0.0100	0.0050	0.001	0.005	0.0017	0.006	0.006	0.02	0.025	0.01																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Mg		0.0010			0.002	0.005	0.002	0.001	0.002	0.002	0.0020	0.0030	0.0010					0.002		0.005																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Mn	0.0001	0.0030	0.001	0.005	0.01	0.005	0.001	0.005	0.0030	0.0100	0.0100	0.0020	0.005	0.0001	0.0002	0.005	0.005	0.005	0.005	0.005																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Ni	0.1	0.0005	0.10	0.002	0.00	0.005	0.005	0.01	0.003	0.003	0.0050	0.0400	0.005	0.05	0.0003	0.01	0.005	0.01	0.005	0.005																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Pb	0.0001	0.0020	0.001	0.0004	0.01	0.0005	0.001	0.0003	0.0050	0.0100	0.0060	0.0040	0.001	0.0003	0.0002	0.0005	0.005	0.005	0.005	0.001																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
S	0.0010	0.0050	0.001	0.001	0.008	0.002	0.001	0.001	0.007	0.010	0.0050	0.0050	0.04	0.001	0.0002	0.001	0.005	0.005	0.010	0.04																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Zn	0.0010	0.0025	0.002	0.002	0.01	0.003	0.001	0.002	0.0050	0.0050	0.0070	0.0050	0.001	0.0004	0.0002	0.002	0.005	0.005	0.005	0.001																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Tons **	1500	1800	2000	4500	720	1200	1000	1000	2000	2000	8500	6500	8200	2000	2000	2000	4000	5400	3000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Shape *	R	BC	CC	CC	BC	CC	CC	CC	BC	BC	BC	BC	CCP	CC	CC	CC	BR	BR	BR	CCP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

Shape * CC = Cut Cats, BC = Broken Cats, N = Ingots, R = Rounds, BR = Briquettes, CCP = Coarse Grain Powder
 Tons ** Estimated total tons for each brand at time of listing. <<< = Tons combined same producer other brands
 No entry next to an element means "not reported".
 Analysis: Cobalt minimum; Impurities maximum.

Brands highlighted in blue are suspended - new warrants cannot be created for these brands

Brands in orange are delisted - new warrants cannot be created for these brands