

AMMTEC LTD

WET HIGH INTENSITY MAGNETIC SEPARATION (WHIMS)

OF

THREE SILICA SAMPLES

FOR

J.J. M^cDONALD & SONS MINING PTY LTD

REPORT NO. A9587

APRIL 2005

SUMMARY

Three silica samples were screened at 300 μm to remove oversize. The $-300 \mu\text{m}$ fraction was deslimed at 38 μm and the sand component attritioned and deslimed a second time.

The sand fraction was then couriered to the CSIRO for WHIMS separation to remove magnetic impurities.

The final nonmagnetics were couriered to the client for chemical analysis.

Stage 1 : Wet Screening at 300 μm

Sample	% Weight		
	EQ01B	106B	108B
+300 μm	33.00	52.91	44.50
-300 μm	67.00	47.09	55.50
Total	100.00	100.00	100.00

Stage 2 : Wet Screening/Attritioning at 38 μm

Sample	% Weight		
	EQ01B	106B	108B
-300 / +38 μm	72.80	76.10	72.38
-38 μm	27.20	23.90	27.62
Total	100.00	100.00	100.00

Stage 3 : WHIMS Separation of -300/+38 μm (CSIRO)

Sample	% Weight		
	EQ01B	106B	108B
Magnetics	11.45	9.82	10.69
Mids	8.79	8.28	8.97
Nonmagnetics	79.75	81.90	80.34
Total	100.00	100.00	100.00

1. INTRODUCTION

At the request of Mr Gerhard K. Krummei, Project Manager, Maydena Silica Sand (Tasmania), and in consultation with Mr Zak Adizes, Principal Consultant, Belminco Pty Ltd, three silica composites were processed through staged wet screening, attritioning and WHIMS magnetic separation to remove oversize and magnetically susceptible impurities (refer Figure 1).

The process feed, deslime feed and final WHIMS non-magnetics were sub-sampled for analysis.

2. SAMPLE RECEIPT

Multiple buckets of sample were delivered to AMMTEC.

The following list summarises the labels on the buckets :

106B4108B UNPROCESSED

90B4 PRODUCTS

EQ1B UNPROCESSED

107B PRODUCTS

EQ1B PART PROCESSED

Instructions were received from the client to combine the two samples labelled EQ1B to form a single composite EQ01B. The bucket containing 106B4 and 108B Unprocessed was opened to source samples subsequently relabelled as 106B and 108B.

All of the samples required drying to remove moisture, to permit blending via a twelve compartment rotary splitter followed by sub-sampling to source a head assay sample.

The balance of each composite was used for processing.

3. WET/DRY SCREENING AND WHIMS TEST WORK

Each sample was wet screened at 300 μm and the oversize fraction (+300 μm) oven dried, weighed and bagged.

The -300 μm fraction was also oven dried then blended through a rotary divider to source a -300 μm representative assay sample.

The following table summarises the weights for each sample :

Stage 1 : Wet Screening at 300 μm

Sample	Weight (kg)		
	EQ01B	106B	108B
+300 μm	12.84	5.30	3.48
-300 μm	26.08	4.72	4.34
Total	38.92	10.02	7.82

Sample	% Weight		
	EQ01B	106B	108B
+300 μm	33.00	52.91	44.50
-300 μm	67.00	47.09	55.50
Total	100.00	100.00	100.00

The balance of the -300 μm fraction was wet screened at 38 μm to remove slimes, and the oversize attritioned in a high speed, twin impeller attritioning unit in batches for 15 minute periods per batch. The attritioned pulp was deslimed at 38 μm and the slimes fraction filtered, dried and weighed.

The following table summarises the resultant weight data for each sample.

Stage 2 : Wet Screening/Attritioning at 38 μm

Sample	Weight (kg)		
	EQ01B	106B	108B
-300/+38 μm	18.61	3.34	2.94
-38 μm	6.95	1.05	1.12
Total	25.56	4.39	4.06

Sample	% Weight		
	EQ01B	106B	108B
-300/+38 μm	72.80	76.10	72.38
-38 μm	27.20	23.90	27.62
Total	100.00	100.00	100.00

The coarser fraction (-300/+38 μm) was oven dried, weighed then packaged for delivery to the CSIRO (Bentley, WA) for WHIMS separation.

The following table summarises product weights from the WHIMS test work :

Stage 3 : WHIMS Separation of -300/+38 μm (CSIRO)

Sample	Weight (kg)		
	EQ01B	106B	108B
Magnetics	2.11	0.32	0.31
Mids	1.62	0.27	0.26
Nonmagnetics	14.69	2.67	2.33
Total	18.42	3.26	2.90

Sample	% Weight		
	EQ01B	106B	108B
Magnetics	11.45	9.82	10.69
Mids	8.79	8.28	8.97
Nonmagnetics	79.75	81.90	80.34
Total	100.00	100.00	100.00

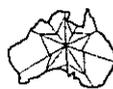
The products generated at the CSIRO were returned to AMMTEC and the nonmagnetics sub-sampled for dispatch to :

Mr Gerhard Krummei
 c/- JJ McDonald & Sons Mining P/L
 Suite 28
 487 St Kilda Rd
 Melbourne, Victoria 3004

FIGURE

FIGURE 1

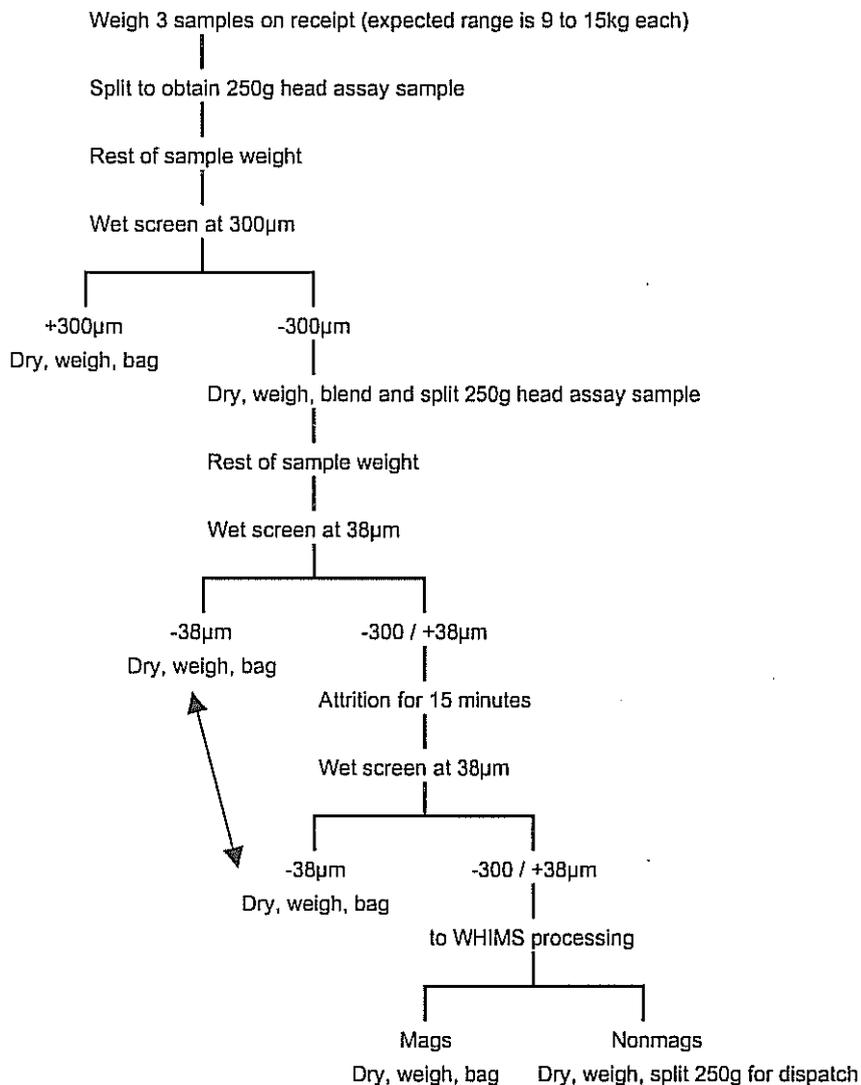
AMMTEC LIMITED
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A9587 : MAYDENA SILICA SAND (TASMANIA) VIA BELMINCO PTY LTD (JANUARY 2005)



APPENDICES

APPENDIX I

SAMPLE DESCRIPTION

(CLIENT SUPPLY)

Ian Dunlop

From: Jo Coci
Sent: Monday, 21 February 2005 9:30 AM
To: Ian Dunlop
Subject: FW: Silica sand test work

-----Original Message-----

From: Gerhard Krummei [mailto:gkrummei@ozemail.com.au]
Sent: Monday, 21 February 2005 9:06 AM
To: Ian Dunlop
Cc: Zak
Subject: Re: Silica sand test work

Good Morning, Ian,

As I was interstate and incommunicado for most of last week I am only now in a position to respond to your query of 15.02.05 re the sample bucket labelling. I was not aware that the original labelling had been amended, re-labelled and/or expanded and the samples re-jigged, so I can understand your need for clarification before starting the tests.

I am assuming no further surprises when you take the lids off the buckets, so please proceed as follows:

1) The bucket labelled **106B4108B UNPROCESSED** should contain two plastic bags, one of which should be labelled 106B (or perhaps even 106B4 - although I do not know where the "4" comes from, and maybe even suffixed "UNPROCESSED"). The other bag in this bucket should be labelled 108B (perhaps also suffixed "UNPROCESSED"). The starting designation of these samples should revert to 106B and 108B respectively.

Please process the above two samples separately as 106B and 108B.

2) Sample **EQ1B** or **EQ01B** (they are the same sample):

Re-combine samples EQ1B UNPROCESSED and all portions of EQ1B PART PROCESSED into one single sample.

Please process this re-constituted sample as EQ01B.

3) On completion of the tests and dispatch of assay samples as per my email of 31.01.05, please collect undersize, oversize, non-mag product and mags into separate bags, label accordingly and place these products into another, larger plastic bag labelled 106B PRODUCTS, 108B PRODUCTS and EQ01B PRODUCTS. These larger bags should then be placed in the appropriately numbered buckets and labelled PRODUCTS. Hopefully, this will make the samples more readily identifiable and accessible to all and sundry newcomers.

4) Samples **90B4 PRODUCTS** and **107B PRODUCTS**; Please hold. Do NOT process.

5) So, in summary, at the end of the project we should have:

- o One bucket labelled 106B PRODUCTS, containing products in plastic bags as per 3) above
- o One bucket labelled 108B PRODUCTS, containing products in plastic bags as per 3) above
- o One bucket labelled EQ01B PRODUCTS, containing products in plastic bags as per 3) above
- o One bucket labelled 90B4 PRODUCTS, as per 4) above
- o One bucket labelled 107B PRODUCTS, as per 4) above

I shall be at or near my desk all this week in the event of any further queries.

Best regards,

GERHARD K. KRUMMEI

APPENDIX II

CSIRO WHIMS REPORT

AMMTEC

WHIMS of Silica sands

	Sample 1		Sample 6		Sample 8	
	Wt: (kg)	% Distn	Wt: (kg)	% Distn	Wt: (kg)	% Distn
Initial	18.64		3.34		2.94	
Mag's	2.11	11.4	0.32	9.9	0.31	10.8
Mid's	1.62	8.8	0.27	8.3	0.26	8.9
Non-Mag's	14.69	79.8	2.67	81.8	2.33	80.3
Total	18.41	100.0	3.27	100.0	2.91	100.0
Loss (kg)	0.23	1.2	0.07	2.1	0.03	1.1