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FUEL RESEARCH INSTITUTE OF SOUTH AFRICA

TECHNICAL MEMORANDUM NO. 14 OF 1965

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GRADING CERTIFICATES



by

W. H. D. Savage

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There are several cases where the issue of new grading certificates must be considered.

1. RIVERSDALE ANTHRACITE

During the latter portion of last year, General Mining acquired the coal rights of Vrisgewaagd Anthracite, Glück Auf Anthracite, and the dormant Riversdale Anthracite. Afrikaner Proprietary Mines Ltd. has leased these rights and established a company, namely Riversdale Anthracite, to mine the coal. The coal is being exported on the old certificates held by Vrisgewaagd and Glück Auf Anthracites, but to regulate matters new certificates should be issued in the name of Riversdale Anthracite.

Analyses of recent samples of export coal from Vrisgewaagd Anthracite (from which current production is drawn) are as follows:-

Date Sampled	C. V. lb/lb	H ₂ O %	Ash %	V. M. %	F. C. %	S %	A. F. T. %
<u>LARGE NUTS</u>							
October 1964	14.38	1.7	7.7	9.9	80.7)	
November 1964	14.02	1.6	9.0	9.5	79.9	) 0.63	+1400
December 1964	13.94	1.7	9.2	10.3	78.8)	
January 1965	13.88	1.7	9.7	10.3	78.3)	
February 1965	14.24	1.4	8.2	10.6	79.8	) 0.63	+1400
March 1965	14.04	1.3	9.1	10.4	79.2)	

Small Nuts/...

Date Sampled	C. V. lb/lb	H ₂ O %	Ash %	V. M. %	F. C. %	S %	A. F. T. %
<u>SMALL NUTS</u>							
October 1964	13.86	1.6	10.3	10.0	78.1)	
November 1964	13.89	1.6	10.2	10.0	78.2	)0.62	+1400
December 1964	13.80	1.8	10.2	9.8	78.2)	
January 1965	13.78	1.6	10.5	9.9	78.0)	
February 1965	13.75	1.4	10.6	9.8	78.2	)0.57	+1400
February 1965	13.76	1.5	10.5	10.3	77.7)	
March 1965	13.97	1.2	10.0	10.2	78.6)	
<u>PEAS</u>							
October 1964	13.84	1.6	10.8	9.6	78.0	)0.68	+1400
November 1964	13.71	1.6	10.8	10.0	77.6)	
January 1965	13.76	1.6	10.9	9.9	77.6)	
February 1965	13.76	1.5	10.6	10.3	77.6	)0.74	+1400
<u>DUFF</u>							
September 1964	13.67	1.3	11.3	10.9	76.5	0.86	+1400
November 1964	13.64	1.6	11.2	10.0	77.2)	
December 1964	13.73	1.6	10.7	10.1	77.6	)0.79	+1400
January 1965	13.80	1.4	10.7	10.6	77.3	0.77	+1400
<u>AVERAGE ANALYSES</u>							
<u>Large Nuts</u>							
All 6 samples	14.08	1.6	8.8	10.2	79.4	0.63	+1400
Last 3 samples	14.05	1.5	9.0	10.4	79.1	0.63	+1400
<u>Small Nuts</u>							
All 7 samples	13.83	1.5	10.3	10.0	78.2	0.59	+1400
Last 4 samples	13.82	1.4	10.4	10.1	78.1	0.57	+1400
<u>Peas</u>							
All 4 samples	13.77	1.6	10.8	10.0	77.6	0.71	+1400
<u>Duff</u>							
All 4 samples	13.71	1.5	11.0	10.4	77.1	0.80	+1400
Last 3 samples	13.72	1.5	10.9	10.2	77.4	0.78	+1400

The averages, where taken for two periods, show little variation. It is suggested that the lower figures be used, and that first-grade anthracite certificates be issued for all size grades.

2. ALPHA ANTHRACITE DUFF

Last year this coal lost its first-grade certificate. It is suggested that this certificate now be reinstated on the basis of the last six samples received, only one of which, at 11.9% ash, was outside the specifications of first-grade anthracite. Analyses of the last six samples, and average data for these samples, are as follows:-

Date Sampled	C. V. lb/lb	H ₂ O %	Ash %	V. M. %	F. C. %	S %	A. F. T. °C
September 1964	13.72	1.5	11.2	10.2	77.1) 0.79)))) 0.78)	+1400
October 1964	14.22	1.4	9.0	10.7	78.9		
November 1964	13.64	1.6	11.3	10.3	76.8		
December 1964	13.62	1.5	11.9	10.2	76.4		
January 1965	14.27	1.4	8.4	10.5	79.7		
February 1965	13.80	1.3	11.0	10.9	76.8		
Average	13.88	1.5	10.5	10.5	77.5	0.80	+1400

The average values are well within the specifications for first-grade anthracite.

3. DOUGLAS PEAS AND DUFF

Douglas peas were first exported to Madagascar in May, 1961. This consignment was on a trial basis, and the loading of the ship was inspected by Dr. van Doornum and Mr. Savage. No undue heating occurred. This coal was exported intermittently since then, three samples being taken in 1961, two in 1962, and four in 1963. The average analysis of these earlier samples, and individual analyses of samples taken from the beginning of last year, are tabulated below.

Date/...

Date Sampled	C. V. lb/lb	H ₂ O %	Ash %	V. M. %	F. C. %	S %	A. F. T. °C
<u>PEAS</u>							
Average 1961 - 1963	13.23	2.1	10.8	26.9	60.2	0.65	+1400
January 1964	13.18	2.1	11.1	25.9	60.9	)0.53	+1400
March 1964	12.93	2.0	12.4	27.2	58.4		
April 1964	13.15	2.1	11.3	26.4	60.2	)0.56	+1400
June 1964	12.86	2.1	12.3	26.6	59.0		
September 1964	12.84	1.9	13.1	27.0	58.0	0.64	+1400
November 1964	12.91	1.9	12.5	28.2	57.4	)0.77	+1400
December 1964	13.02	1.9	12.0	28.4	57.7		
February 1965	12.85	1.9	12.7	27.6	57.8	0.69	+1400
Average Last Three	12.93	1.9	12.4	28.1	57.6	0.74	+1400

Permission to export Douglas duff on a trial basis was given by the Board in January, 1962. The first consignment was sampled by the Institute in June, 1964. Analytical data for this and subsequent samples are given below.

Date Sampled	C. V. lb/lb	H ₂ O %	Ash %	V. M. %	F. C. %	S %	A. F. T. °C
<u>DUFF</u>							
June 1964	12.95	2.1	11.9	27.3	58.7	0.46	+1400
September 1964	12.89	2.0	12.7	27.4	57.9	0.48	+1400
October 1964	13.16	1.8	11.2	29.8	57.2	0.48	+1400
January 1965	12.94	2.3	12.0	27.7	58.0	)0.52	+1400
February 1965	13.28	2.0	10.4	29.0	58.6		
Average Last Three	13.13	2.0	11.2	28.8	58.0	0.51	+1400

No export certificates have been issued to Douglas Colliery for these products. In the current grading regulations no provision

has/...

has been made for the export of steam coal smaller than nut size. (Quote Part III 4 (6): "Note - The issue of grading certificates for coal under $\frac{3}{4}$ inch in size is not provided for in these regulations owing to the risk of spontaneous combustion. For the same reason the limitations on undersize for nut coal have been imposed.") However, a grading certificate for duff coal, ex dump, from Enyati Colliery was granted on an annual basis, and renewed from time to time. This coal was exported to Burma, and no reports of overheating were received at the Institute.

The Douglas peas have been exported to Madagascar and Spain, and the duff to Madagascar; no reports of overheating have been received. (Telephonic information received from the Transvaal Coal Owners' Association.)

A ruling from the Board is requested as to whether to allow the continuance of export of Douglas peas and duff without the issue of grading certificates, or to issue grading certificates for these products. As several consignments of peas have been successfully exported to Spain, there does not appear to be any need for special restrictions on peas if a certificate is granted. In the case of duff, however, it may be desirable to impose restrictions; this would be of particular importance if the coal were kept in trucks for a long time or stockpiled at Lourenco Marques, as heating may occur before loading, and a mixture of air-dry and surface-moist coal would be more liable to spontaneous heating.

Douglas peas and duff both qualify as first-grade export coal.

W. H. D. SAVAGE
Chief of Survey Division.

PRETORIA,
14th May, 1965.

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