



PRODUCT	ISO ASH%	ISO VOLATILES (%)	CALORIFIC VALUE (MJ/Kg)	TOTAL SULPHUR (%)	PHOSPHORUS IN COAL (%)	TOTAL CARBON (%)	HYDROGEN (%)	NITROGEN (%)	AFT (REDUCING) DEFORMATION (°C)	AFT (REDUCING) SOFTENING (°C)	AFT (REDUCING) HEMISPHERE (°C)	AFT (REDUCING) FLOW (°C)
ARM035	27.31	16.24	23.83	1.94	0.040	60.72	2.98	1.66	1350	1386	1440	1470
ARM036	13.18	10.03	29.70	2.23	0.091	-	-	-	-	-	-	-
ARM037	-	-	-	4.74	-	-	-	-	-	-	-	-
ARM038	15.05	23.53	28.06	0.76	0.079	-	-	-	-	-	-	-
ARM039	14.65	17.89	30.24	1.67	0.040	-	-	-	-	-	-	-
ARM040	10.39	35.37	29.24	1.13	0.009	71.84	4.63	1.41	-	-	-	-
ARM041	29.41	18.41	22.50	1.65	0.043	58.79	2.99	1.50	1293	1325	1380	1435
ARM042	40.69	21.43	16.44	0.82	0.061	44.17	2.43	1.03	-	-	-	-
ARM043	14.67	23.78	28.17	0.55	0.100	71.45	3.74	1.64	-	-	-	-
ARM044	27.97	20.30	22.71	1.29	0.049	58.14	3.04	1.38	-	-	-	-
ARM045	10.57	27.22	29.08	0.60	0.036	72.95	4.01	1.81	-	-	-	-
ARM046	16.57	19.73	28.81	1.49	0.039	72.24	3.69	1.89	1340	1407	1442	1460
ARM047	23.49	21.72	24.09	0.91	0.093	61.95	3.06	1.45	-	-	-	-
ARM048	4.97	2.33	32.30	0.24	0.018	91.34	1.31	0.91	-	-	-	-
ARM049	25.14	17.65	24.19	0.98	0.059	62.91	2.84	1.33	-	-	-	-
ARM050	13.08	26.82	27.77	0.45	0.126	71.44	3.89	1.76	-	-	-	-
ARM051	30.80	21.85	21.36	1.12	0.073	55.65	2.91	1.32	1355	1384	1426	1470
ARM052	23.87	23.09	24.27	0.90	0.030	-	-	-	-	-	-	-

PRODUCT	ISO ASH%	ISO VOLATILES (%)	CALORIFIC VALUE (MJ/Kg)	TOTAL SULPHUR (%)	PHOSPHORUS IN COAL (%)	TOTAL CARBON (%)	HYDROGEN (%)	NITROGEN (%)	AFT (REDUCING) DEFORMATION (°C)	AFT (REDUCING) SOFTENING (°C)	AFT (REDUCING) HEMISPHERE (°C)	AFT (REDUCING) FLOW (°C)
ARM053	14.33	27.40	27.58	0.46	0.138	70.04	4.08	1.70	-	-	-	-
ARM054	22.87	25.25	24.90	0.95	0.035	63.34	3.53	1.47	-	-	-	-
ARM055	18.94	23.96	25.56	0.55	0.099	66.43	3.57	1.58	-	-	-	-
ARM056	33.56	19.23	20.39	1.00	0.047	53.61	2.98	1.22	-	-	-	-
ARM057	30.27	19.26	22.18	1.65	-	-	-	-	-	-	-	-

PRODUCT	ASTM ASH%	ASTM VOLATILES (%)	Chlorine
ARM039	14.65	18.57	-
ARM042	40.90	21.75	-
ARM043	14.71	24.29	-
ARM046	16.65	20.44	-
ARM048	5.03	2.94	-
ARM050	13.00	27.74	-
ARM051	30.91	22.28	-
ARM053	14.38	-	-

**Accredited Benzoic acid, traceable to NIST**

**Available in 1g and 0.5g weights  
100 pills per bottle.**

**CONTACT DETAILS**

Mail: [ravi@coalconcepts.co.za](mailto:ravi@coalconcepts.co.za)

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Unit 10, 81 Ceramic Curve , Richards Bay, KZN , South Africa

**CATALOGUE SHEET: METALLURGICAL COKE REFERENCE SAMPLES - 26/03/2021**  
**LIST OF SPECIFICATIONS**

**PULVERISED COKE LESS THAN 212um (DRY BASE RESULTS), (Available in 100g units)**

<b>PRODUCT</b>	<b>ASH%</b>	<b>VOLATILES (%)</b>	<b>TOTAL SULPHUR (%)</b>	<b>PHOSPHORUS IN COKE (%)</b>
<b>SRM 002</b>	9.53	1.31	0.20	0.013
<b>SRM 004</b>	11.56	1.40	0.44	0.019
<b>SRM 005</b>	11.36	1.17	0.38	0.017
<b>SRM 006</b>	11.40	1.38	0.39	0.016
<b>SRM 007</b>	11.74	1.06	0.76	0.023
<b>SRM 008</b>	11.47	1.41	0.39	0.019
<b>SRM 009</b>	11.48	1.51	0.38	0.020
<b>SRM 010</b>	11.62	1.50	0.39	0.022
<b>SRM 011</b>	17.56	5.53	1.69	0.042
<b>SRM 012</b>	20.45	7.14	2.16	0.066
<b>SRM 013</b>	11.45	1.49	0.39	0.021

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**CATALOGUE SHEET: COAL ASH REFERENCE SAMPLES - REV 8 JUNE 2021**

**LIST OF SPECIFICATIONS**

(Available in 20g units)

PRODUCT	Major and Minor elements (%m/m) in coal ash										
	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	MgO	CaO	MnO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	NaO	TiO <sub>2</sub>	SO <sub>3</sub>	P <sub>2</sub> O <sub>5</sub>
ASH RM 006	52.14	26.98	0.99	1.11	4.55	0.044	5.56	0.26	1.18	3.19	0.25
ASH RM 013	54.89	32.44	0.84	0.54	2.16	0.041	4.43	0.06	1.82	2.05	0.33
ASH RM 014	52.29	31.67	0.85	0.51	2.53	0.050	6.46	0.07	1.86	2.73	0.44
ASH RM 015	55.67	31.44	0.65	0.74	2.42	0.036	3.99	0.13	1.78	1.89	0.37
ASH RM 016	50.18	29.05	0.93	1.39	6.35	0.061	5.82	0.21	1.56	3.23	0.57
ASH SRM 019	52.71	31.35	0.53	0.99	4.54	0.038	3.60	0.23	1.58	2.44	0.41
ASH SRM 020	53.91	25.22	2.14	1.12	6.36	0.102	5.10	0.97	1.26	2.22	0.40
ASH SRM 021	52.72	33.33	0.71	0.97	2.67	0.039	4.09	0.21	1.90	2.43	0.35
ASH SRM 022	46.48	29.30	1.38	1.32	4.88	0.050	8.99	1.22	1.34	4.46	0.49
ASH SRM 023	51.86	25.54	2.12	1.07	4.24	0.052	8.29	1.00	1.22	4.08	0.34

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**CATALOGUE SHEET: HARDGROVE GRINDABILITY INDEX COAL REFERENCE SAMPLES**  
**28/08/2021**

1. UNIT SIZE :  $\pm 1000\text{g}$
2. TOPSIZE : Less than 1.18mm , greater than 600um
3. PURPOSE: To be used as reference/control samples
4. SPECIFICATIONS

SAMPLE REFERENCE	ASSIGNED VALUE
ARM 003	55
ARM 004	52
ARM 005	64
ARM 006	54
ARM 008	60
ARM 009	59
ARM 010	31
ARM 011	55
ARM 012	51
ARM 013	64
ARM 014	53
ARM 015	48
ARM 018	48
ARM 019	57
ARM 020	51
ARM 022	47
ARM 023	46
ARM 024	52
ARM 025	62
ARM 027	48
ARM 029	38
ARM 030	58
ARM 032	45
ARM 033	46
ARM 034	52
ARM 035	53
ARM 036	62

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**South African National Accreditation System**

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South Africa

Telephone: +27 (012) 740 8400  
Website: [www.sanas.co.za](http://www.sanas.co.za)



Our Reference: CRM008  
Your Reference: CRM008

Mr R Baboolal  
RMB Industrial Stationers CC  
T/A Coal Concepts  
81 Ceramic Curve  
Alton  
Richards Bay  
3900

08 July 2021

**SANAS ACCREDITATION**

Dear Mr Baboolal

On behalf of SANAS, I am greatly pleased to inform you that following a meeting of the SANAS Approval Committee held on **08 July 2021**; **RMB Industrial Stationers CC[2006/149731/23]; Trading As Coal Concepts** has been granted the unique accreditation number of **(CRM008)**, indicating a SANAS Accredited **Producer of Reference Material**.

The following personnel and scope have been approved: -

***Signatories:***

Nominated Representative: **Mr R Baboolal**

Technical Signatory: **Mr R Baboolal**

***Scope:***

**Producer of Reference Materials to ISO 17034:2016**

As a SANAS accredited organisation **RMB Industrial Stationers CC [2006/149731/23]; Trading as Coal Concepts** is required to adhere to all the conditions of SANAS accreditation, as stipulated in the signed Accreditation Agreement, and the various applicable SANAS Requirement Documents, which are available on the SANAS website [www.sanas.co.za](http://www.sanas.co.za).

A SANAS Certificate and Schedule of Accreditation will be forwarded to **RMB Industrial Stationers CC [2006/149731/23]; Trading as Coal Concepts** within the next three (3) weeks.

**BOARD OF DIRECTORS**

Le rato Mothae, Samuel Mlangeni, Fezile Wetes, Patricia Lindi Tlou (Acting Chairperson), Sarah Mohlala, Tshenge Demana, Mpho Phaloane, Molefe Pule, Irish Bologo, Zukiswa Kimani, Nitin Gunga.

The following is attached:

1. The SANAS Accreditation Symbol, which **RMB Industrial Stationers CC [2006/149731/23]; Trading as Coal Concepts** is now authorised to use, subject to the conditions as stipulated in R04;

Congratulations on this significant achievement. SANAS welcomes **RMB Industrial Stationers CC [2006/149731/23]; Trading as Coal Concepts** and trusts that this new relationship will be mutually rewarding.

Yours faithfully,



**Mr NJ Tayler**

Accreditation Manager: Proficiency Testing Scheme Laboratories



# **CERTIFICATE OF ACCREDITATION**

*In terms of section 22(2) (b) of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 2006 (Act 19 of 2006), read with sections 23(1), (2) and (3) of the said Act, I hereby certify that:-*

**RMB INDUSTRIAL STATIONERS CC**  
**Co. Reg No: 2006/149731/23**  
**TRADING AS**  
**COAL CONCEPTS**

Accreditation Number: **CRM008**

is a South African National Accreditation System Reference Material Producer provided that all SANAS conditions and requirements are complied with

This certificate is valid as per the scope as stated in the accompanying scope of accreditation Annexure "A", bearing the above accreditation number for

**PRODUCER OF REFERENCE MATERIALS**

The facility is accredited in accordance with the recognised International Standard

**ISO 17034:2016**

The accreditation demonstrates technical competency for a defined scope and the operation of a Reference Material Producer quality management system

While this certificate remains valid, the Accredited Facility named above is authorised to use the relevant SANAS accreditation symbol to issue facility reports and/or certificates

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**Ms FS Radebe**  
**Interim Acting Chief Executive Officer**

**Effective Date: 08 July 2021**  
**Certificate Expires: 07 July 2026**

## ANNEXURE A

## SCOPE OF ACCREDITATION

Accreditation Number: CRM008

<b>Permanent Address of RM Producer:</b> RMB Industrial Stationers CC T/A Coal Concepts 81 Ceramic Curve Alton Richards Bay 3900		<b>Technical Signatory:</b> Mr R Baboolal		
<b>Postal Address:</b> P O Box 2691 Richards Bay 3900		<b>Nominated Representative:</b> Mr R Baboolal		
Tel: (035) 751-2446 E-mail: <a href="mailto:ravi@coalconcepts.co.za">ravi@coalconcepts.co.za</a>		Issue No.: 01 Date of issue: 08 July 2021 Expiry date: 07 July 2026		
ITEM	PROPERTY (IES) CHARACTERIZED	DETAIL of PROPERTY CHARACTERIZED	RANGE of PROPERTY CHARACTERIZED	METHOD USED TO ASSIGN PROPERTY VALUE
1	<b>REFERENCE MATERIAL (RM)</b>			
1.1	<b>Fossil Fuels (Coal)</b>			
1.1.1	Coal Analysis, Content (%)	Ash content Volatile Matter Total sulphur Carbon Hydrogen Nitrogen Phosphorous	4,0 to 42 % 2,0 to 37 % 0,2 to 3,0 % 53 to 90 % 1,0 to 4,0 % 0,9 to 1,8 % 0,0 to 0,2 %	Analysis in a network of competent laboratories.
1.1.2	Coal Analysis, Calorific Value	Calorific value	16 to 33 MJ/kg	Analysis in a network of competent laboratories.
1.1.3	Coal Analysis, Ash Fusion Temperatures	Deformation Softening Hemisphere Flow	1280 to 1359 °C 1317 to 1386 °C 1346 to 1440 °C 1387 to 1470 °C	Analysis in a network of competent laboratories.
1.1.4	Coal Analysis, Physical Properties	Hardgrove Grindability Index (HGI) Abrasion Index	31 to 66	Analysis in a network of competent laboratories.
1.2	<b>Coal combustion residuals</b>			
1.5	Coal Ash Chemical Constituents	Silicon dioxide (SiO <sub>2</sub> ) Aluminium oxide (Al <sub>2</sub> O <sub>3</sub> ) Magnesium oxide (MgO) Sodium oxide (Na <sub>2</sub> O) Titanium dioxide (TiO <sub>2</sub> ) Manganese dioxide (MnO <sub>2</sub> ) Calcium oxide (CaO) Potassium dioxide (KO <sub>2</sub> ) Iron oxide (Fe <sub>2</sub> O <sub>3</sub> ) Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> ) Sulphur trioxide (SO <sub>3</sub> )	43,66 to 57,06 % 19,54 to 33,96 % 0,51 to 1,89 % 0,06 to 1,16 % 1,26 to 1,90 % 0,030 to 0,102 % 1,17 to 7,99 % 0,43 to 2,14 % 2,96 to 12,82 % 0,11 to 2,31 % 0,83 to 4,46 %	Analysis in a network of competent laboratories.

Original date of accreditation: 08 July 2021

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Accreditation Manager

## ANNEXURE A

Accreditation No: CRM008  
Date of Issue: 08 July 2021  
Expiry Date: 07 July 2026

ITEM	PROPERTY (IES) CHARACTERIZED	DETAIL of PROPERTY CHARACTERIZED	RANGE of PROPERTY CHARACTERIZED	METHOD USED TO ASSIGN PROPERTY VALUE
1.3	<b>Organic Chemical Compounds</b>			
1.6	Benzoic acid	Calorific value	26.430 to 26.440 MJ/Kg	Combination of ingredients using gravimetry / Value transfer from closely matched CRM.

Original date of accreditation: 08 July 2021

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ISSUED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM

**Accreditation Manager**