Sasol Coal Acoustic Testing

Ben van Zyl
Acoustic Consulting Engineer

☎ & Fax: (012) 807-4924
ben@acusolv.co.za

P O Box 70 596
DIE WILGERS
0041

542 Verkenner Ave Die Wilgers Pretoria

	Company	Attention	Contact No	Date
To:	Remco Industries	Mr Phillip du Plessis	phillipdup@megaroller.co.za	2-Apr-2007

Report G644-R1 - Issued: 2-Apr-2007

MEGA ROLLER IDLER NOISE
SASOL SYFERFONTEIN OVERLAND CONVEYOR NOISE TESTS

1 Conveyor noise tests

In 2005 Sasol Mining (Pty) Ltd completed a project in which the speed of the Syferfontein overland conveyor was increased from 4,5 to 6,5 m/s. This resulted in a significant increase in noise level, which prompted Sasol to undertake a noise reduction programme. In developing and assessing solutions to the problem, a series of noise tests and investigations were conducted on 100 m sections of experimentally modified conveyor line. This included comparative tests on sections fitted with conventional idlers and sections fitted with low-noise idlers sourced from various suppliers.

This report summarises the results of comparative noise tests conducted at source on standard steel versus Mega Roller idlers, with the line running under load at 6,5 m/s.

2 Test method

Tests were conducted in accordance with the requirements of SANS 10103[1]. With the microphone positioned at a height of 1,3 m above immediate ground level, equivalent continuous A-weighted sound pressure levels (L_{Aeq}), were measured at a distance of 1,0 m from the edge of the outer roller on the supply belt. Since the noise level varies between idlers, the average level was determined by means of time integration (energy-averaging) along a trajectory spanning a number of idlers and running parallel to the conveyor at the test distance. To avoid interference from adjacent sections, the measurement trajectory started and ended 10 m short of the extremes of the section under test.

Equipment used:

(a) Brüel & Kjaer Type 2260 Modular Precision Sound Analyser (Ser no. 1875497)

(b) Brüel & Kjaer Type 4189 Measurement Microphone (Ser no. 1858498)

(c) Brüel & Kjaer Type 4220 Piston-phone Calibrator (Ser no. 408116)

SABS Metrology Laboratory Calibration certificate No. 7232.YV1115-1.

1 *SANS 10103:2004 "The measurement and rating of environmental noise with respect to land use health, annoyance and to speech communication"*

3 Test result

Test results are presented in Table 3.1, with the noise reduction rounded to the nearest integer value.

Table 3.1

Sasol Mining Syferfontein Conveyor
Noise levels measured at 1 m distance
Compare conventional steel with Mega Roller idlers
Installed in adjacent sections of line 100 m in length
Conveyor running under load at 6,5 m/s

Idler	**Noise level** [dBA]	**Noise reduction** Relative to conventional idlers [dB]
Conventional steel idlers	90,5	-
Mega Roller HPDE idlers	70,0	21

The results show that the section of conveyor fitted with Mega Roller HPDE idlers produced 21 dB less noise, compared to conventional steel idlers initially installed on the conveyor.

Ben van Zyl PhD (Pr Eng)
Acoustical Engineer