Regional NSW

Mine Safety TECHNOLOGY CENTRE

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23rd of July, 2021

M.S.T.C. TEST REPORT T21-00433/0002

Company:	SkillPro Services Pty. Ltd.
Sample Description:	*SkillPro Barrier Bag* – with red non-metallic hook-&-ring arrangement mounted to dropper hook and strap, filled with approx. 6 kg of stone dust for testing ; batch # 2016
Intended Use:	Bags Used for Explosion Barriers ('Bat Bags') [Refer *MDG3608*, 6.8]
Sample No.:	T21-00433/0001

Figs. 1a – 1c: Sample as received

SUMMARY

The sample **complied** with the 'Spark Incendivity' requirements of *MDG3608*, 6.8.1.2.

Analysed by: A.Thompson

Checked by: J Sanders

Authorised by:

G. Slater
Manager
Mine Safety Technology Centre

Clause 3.1.2 of *MDG3608* states that all conveyor belting (Grade S) and conveyor accessories must be re-tested at least every 5 years and whenever a change in the formulation, raw-material supply, manufacturing process or manufacturing location occurs.

ELECTRICAL RESISTANCE
Spark Incendivity Test

Sample:

SkillPro Barrier Bag – with red non-metallic hook-&-ring arrangement mounted to dropper hook and strap - bag filled with approx. 6 kg of stone dust for testing ; batch # 2016

Test Dates:

22nd & 23rd of July, 2021

Method of Analysis: *MDG3608*, Appendix C9 (- adaptation of the Ignition Testing procedure of Section 7.2 of *IEC 61340-4-4:2005*, utilising a Van de Graaff generator to generate a static charge on the sample surface)

Results:

Test Piece	Ignition Attempts	Ignitions	Comments
SkillPro Barrier Bag & mounting assy (& 6 kg stone dust)	100	0	No 'static' heard on ignition attempts.

Test Piece	Ignition Attempts	Ignitions	Comments
Std 'control' test piece - unearthed	8	8	Discharges from the charged & unearthed 'control-piece' igniting the gas mix throughout the sample testing verify sample charging.

Test Conditions:

- The top of the dropper hook was earthed to replicate hanging the bag from steel mesh attached to coal in-situ. As the dropper hook and strap were measured to have high electrical resistance, the supplied mounting hardware is unlikely to provide the bag with a conductive path to earth.
- Charging device: EM4134-101 400kV Van de Graaff generator.
- For test #1 - #75 charging Van de Graaff contacted bag; for test #76 - #100 it contacted dropper
- Samples conditioned at (23 ± 2)°C with (50 ± 10)% relative humidity for longer than 12 hours.
- Testing undertaken in 22°C, 43% RH atmosphere on 22/7/21 and in 22°C, 45% RH on 23/7/21.
- Flammable gas mixture: approx. 94.6% air, 5.4% ethylene.
- Flow rates: Air – approx. 12.0 $L.min^{-1}$; ethylene – approx. 0.7 $L.min^{-1}$

Figs. 2a – 2e: Assessing dropper hook resistance ; charging of mounted sample ; an ignition attempt on the charged sample

Any variation from Standard/Test Method: Relative humidity of test atmosphere < (60 ± 10)%.

Requirements:

When the ignition probe approaches the sample, there is no ignition of the combustible gas mixture. (If the combustible gas mixture is ignited from a discharge spark from the charged sample piece, the product does not satisfy the test criteria.)

Sample Status:

The sample **complied** with the 'Spark Incendivity' requirements of *MDG3608*, 6.8.1.2.

Clause 3.1.2 of *MDG3608* states that all conveyor belting (Grade S) and conveyor accessories must be re-tested at least every 5 years and whenever a change in the formulation, raw-material supply, manufacturing process or manufacturing location occurs.