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G Ó R N I C T W A

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GIG TESTING AND CALIBRATION LABORATORIES
(ZESPÓŁ LABORATORIÓW BADAWCZYCH I WZORCUJĄCYCH GIG)
Laboratory of Technical Acoustics

www.elektrostatyka.gig.eu



AB 005



Copy no. 1/2

Katowice, 06.12.2018

Test report no. BR-1/201/2018

Testing and evaluation of electrostatic properties
of the EVOLite safety helmets according to PN-EN 80079-36: 2016-07 and
PN-EN 60079-32-2:2015-08 standards

Ordering Party:

JSP Ltd
Worsham Mill
Minster Lovell
OX29 0TA; United Kingdom

Order dated: 01.12.2018

GIG reference number: 587 2425 8 - 171

Report prepared by:

Główny Instytut Górnictwa
Zespół Laboratoriów Badawczych i Wzorcujących
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mgr inż. Adam Szopa

(signature of preparing person)

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(signature of approver)

- GIG Testing and Calibration
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(BL-1)
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1)
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and Electric Detonators
Testing (KD-3.1)
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4.2)

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IGIG PS-07 - encl. no.1, rev.. 9, valid since 29.05.2018
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1. The basis of the test

The test was conducted using the following standards:

- PN-EN ISO 80079-36:2016-07 standard titled „Explosive atmospheres. Part 36: Non-electrical equipment for explosive atmospheres. Methodology and testing”.
- PN-EN ISO 60079-32-2:2015-08 standard titled „Explosive atmospheres. Part 32-2: electrostatic hazards”.

At the Ordering Party's request, the obtained test results from sec. 3 were referred to the criteria given in the standard. The results of measurements obtained during the tests are contained in the measurement report possessed by the Laboratory and the Ordering Party.

2. Characteristics of samples

The Ordering Party provided ready-made products for testing: EVOLite protective helmets of white, yellow, green, blue, red, black, brown, hi-vis yellow and orange colours, in the versions: Invincible® EvoLite® and EVOLite® Skyworker™. The Skyworker line has a filling for special applications. The products were identified based on the CE 676976 certificate issued by BSI.

The samples were taken from the production according to the internal procedure of quality control of products by the Ordering Party's employee. The samples complied the requirements of the standard as relates measurements.

3. Test results

Test results are presented below.

At the Ordering Party's request, the results were referred to the criteria of the standard.

Sample number	Ability to electrification [nC]
201_8/1 white	<60
201_8/2 yellow	<60
201_8/3 blue	<60
201_8/4 green	<60
201_8/5 black	<60
201_8/6 red	<60
201_8/7 orange	<60
201_8/8 hi-vis yellow	<60
201_8/9 brown	<60

4. Opinions and interpretations formulated on the basis of test results

Persons responsible for including opinions and interpretations formulated on the basis of test results made using the methods presented in the current scope of accreditation in the field of tests of electrostatic properties of products - Przemysław Kędzierski, Ph.D. Eng.

In the meaning of the standard PKN CLC/TR 61340-5-2:2014-01 the ESD Coordinator is responsible for all aspects related to ESD (Electro Static Discharge) protection.

The ESD Coordinator's qualifications issued on the basis of the Regulation of the Minister of Education and Science on obtaining professional qualifications.

The assessment of the suitability of the product in potentially explosive areas should be carried out in accordance with the Regulation of the Minister of Energy of November 23, 2016 on specific requirements for the operation of underground mining facilities (Journal of Laws of 2017, item 1118).

Paragraph 221 of the Regulation reads as follows: *It is unacceptable to use in the potentially explosive atmosphere personal protection equipment and clothing and footwear that may: 1) be a source of spark or arc caused by static electricity or impact, 2) ignite the explosive mixture.*

In accordance with the requirements of PN-EN ISO 80079-36:2016-07:

Equipment with a projective surface area in excess of 100 cm² in any direction should be designed in such a way that, in normal conditions of use, maintenance and cleaning, the danger of ignition due to electrostatic charges is avoided.

This requirement should be met by applying one of the following methods:

- a) *By appropriate selection of a material with a surface resistance measured in accordance with clause 8.4.8 not exceeding 10⁹ Ω, at a temperature of (23±2) °C and relative humidity (50±5) % or not exceeding 10¹¹ Ω, at a temperature of (23±2) °C and relative humidity (25±5) %*
- b) *By size, shape and layout or other protective methods, such that an electrostatic charge is unlikely to occur. This requirement can be met by carrying out the test according to Annex D, assuming that a spreading brush discharge cannot occur;*
- c) *When a nonconductive material is a coating on a grounded metal (conductive surface), the thickness is limited to less than 2 mm, assuming that a spreading brush discharge cannot occur.*

The results of tests for the ability to electrify the EVOLite safety helmets (colours: white, yellow, green, blue, black, red, hi-vis yellow, brown and orange), in the versions of Invincible® EvoLite® and EVOLite® Skyworker™, meet the criteria for protection against static electricity as described in PN-EN ISO 80079-36:2016-07 for potentially explosive atmospheres 0, 1, 2, 20, 21 and 22, classified acc. to PN-EN 1127-1:2011 and PN-EN 13237:2005, and thus meet the requirements of the Regulation of the Minister of Energy of November 23, 2016 on detailed requirements for underground mining operations (Journal of Laws 2017, item 1118) regarding antistatic parameters of personal protective equipment.

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Wykwalifikowany Koordynator ESD
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dr inż. Przemysław Kędzierski

5. Researcher

The Central Mining Institute
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Accreditation certificate number AB 005
Certificate expiry date 30.12.2022.

The Laboratory declares that the test results refer only to the tested sample.
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