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TECHNICAL OPINION

No. OBAC/0343/TP/18

**Subject: Assessment of possibilities of using paper filters in
explosive atmospheres**

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Approved by:


By proxy of the Head of OBAC Certification Body
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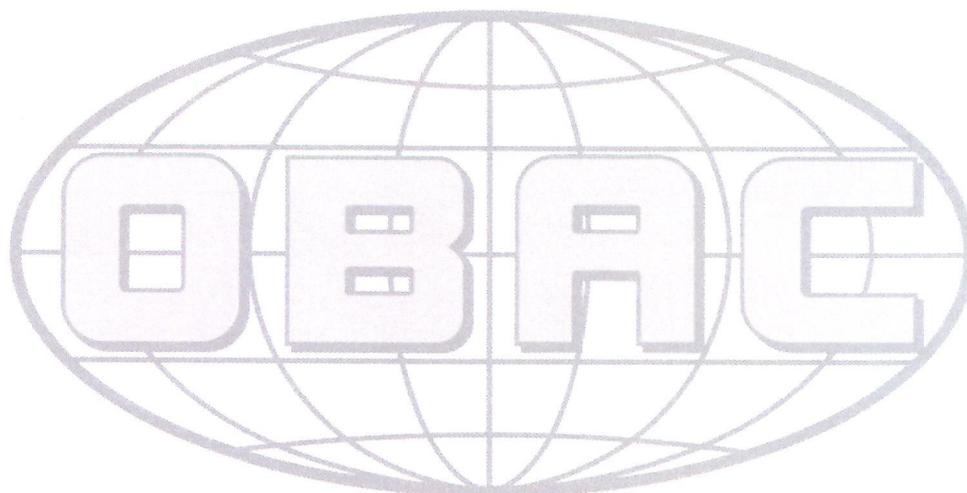
Cc. Andreae Team Sp. z o.o. x 2, OBAC x 1

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1. CLIENT

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2. THE DOCUMENTS CONSTITUTING THE BASIS OF THE ASSESSMENT OF THE OBJECT OF EVALUATION IN COMPLIANCE WITH THE APPLICABLE REQUIREMENTS

PN-EN 1127-1:2011 Potentially explosive atmospheres. Explosion prevention and protection. Part 1: basic definitions and methodology.

Technical Report CLC/TR 60079-32-1. Explosive atmospheres. Part 32-1. Electrostatic Hazards. Guidance. April 2015.

3. THE SCOPE OF THE ASSESSMENT

Assessment of paper filters in terms of possibility of their usage in explosive atmospheres on the basis of the analysis of test results

4. MATERIALS RELATED TO THE SUBJECT OF THE STUDY

4.1. Institute for Research, Attestation and Certification OBAC Ltd., LABOREX Laboratory report no. LL/260/2018. Gliwice, 15/10/2018

4.2. Data sheets of the filters in English version have been made available by Andreae Team Sp. z o.o

5. THE OBJECT OF THE OPINION

5.1. The object of the opinion are paper filters. The scope of this opinion includes the following filters (original naming by the Manufacturer)

- AF101 Andreae Filters Starter
- AF103 Andreae Filters Starter
- AF111 Andreae Filters The Original
- AF113 Andreae Filters The Original
- AF 141 Andreae Filters HP
- AF 143 Andreae Filters HP
- AF151 Andreae Filters HH
- AF153 Andreae Filters HH

6. TECHNICAL ASSESSMENT

6.1. The analysis of effective ignition sources presence in compliance with PN-EN 1127-1 norm for products that are the object of this opinion indicates the possibility of presence of sole ignition source in the form of static electricity discharge. Ignition hazard caused by accumulation of static charges on the surface of the filters has been described in item 6 of the document Technical Report CLC/TR 60079-32-1 referred to in item 2 hereof.

6.2. The results of laboratory test of surface resistance of the filters (see section 4.1 hereof) allow for the conclusion that, in accordance with Table 1 referred to in Technical Report CLC/TR 60079-32-1 document, they are treated as non-conductive materials (surface resistance greater than 1GΩ).

6.3. The conducted electrification tests are the basis of determination in which explosion hazard groups of devices the filters may be used. On the basis of

comparison of the obtained results (see item 4.1 hereof) with the limit values of transferred charge determined in Table 4 of Technical Report CLC/TR 60079-32-1, it has been stated that:

- Filters AF101 Andraea Filters Starter may be used in devices of group I and group IIC.
- Filters AF103 Andraea Filters Starter may be used in devices of group I and group IIC.
- Filters AF111 Andraea Filters The Original may be used in devices of group I and group IIC.
- Filters AF113 Andraea Filters The Original may be used in devices of group I and group IIC.
- Filters AF 141 Andraea Filters HP may be used in devices of group I and group IIB.
- Filters AF 143 Andraea Filters HP may be used in devices of group I and group IIB.
- Filters AF151 Andraea Filters HH may be used in devices of group I and group IIA.
- Filters AF153 Andraea Filters HH may be used in devices of group I and group IIA.

7. CONCLUSIONS, RECCOMENDATIONS AND COMMENTS

7.1. On the basis of the conducted assessment it may be stated that the filters

- AF101 Andraea Filters Starter
- AF103 Andraea Filters Starter
- AF111 Andraea Filters The Original
- AF113 Andraea Filters The Original
- AF 141 Andraea Filters HP
- AF 143 Andraea Filters HP
- AF151 Andraea Filters HH
- AF153 Andraea Filters HH

may be used in explosive atmospheres with consideration of item 6.3 hereof.

7.2. Institute for Research, Attestation and Certification "OBAC" in Gliwice reserves the right to make additional requirements or conditions, if such necessity arises during the operation of the product.

Checked by:

MSc Maciej Bylica

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