



**MILITARY INSTITUTE OF CHEMISTRY AND
RADIOMETRY**

**Research Laboratory of Respiratory Protection
al. gen. A. Chruściela 105
00 – 910 Warsaw**



AB 380

RESEARCH REPORT
nr S/38/2020

RESEARCH REPORT

Measurements of inhalation resistance in constant flow and measurement of the carbon dioxide content in inhaled air for AIBANA 001 half masks.

RESEARCH FUNDAMENTALS: Order W-3515/A/20 dated 29.05.2020 r.
WICHiR income number 1190/20 dated 02.06.2020 r.

CUSTOMER: Polski Rejestr Statków S.A.
al. gen. Józefa Hallera 126, 80-416 Gdańsk

Date of samples delivery: 02.06.2020 r.
Completion date of research: 23.06.2020 r.
Distribution list: Copy No 1 – Research Laboratory of Respiratory Protection
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1. Basis of research

Order W-3515/A/20 dated 29.05.2020 r.

WICHiR income number 1190/20 dated 02.06.2020 r.

2. Customer

Polski Rejestr Statków S.A.

al. gen. Józefa Hallera 126, 80-416 Gdańsk

3. Test location and sample delivery plan

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Sample delivery plan: Samples were provided by the customer in the amount in accordance with the order.

4. Research subject

Research subject is presented in Table 1.

Product manufacturer: Putian Sisen Technology Co., Ltd.

Table 1. Research subject.

Sample No	Sample name
226/XXVI/2020	Protection half mask, model: AIBANA 001
227/XXVI/2020	Protection half mask, model: AIBANA 001
228/XXVI/2020	Protection half mask, model: AIBANA 001
229/XXVI/2020	Protection half mask, model: AIBANA 001
230/XXVI/2020	Protection half mask, model: AIBANA 001
231/XXVI/2020	Protection half mask, model: AIBANA 001
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235/XXVI/2020	Protection half mask, model: AIBANA 001
236/XXVI/2020	Protection half mask, model: AIBANA 001
237/XXVI/2020	Protection half mask, model: AIBANA 001

5. Research range

For delivered filter half masks inhalation resistant in constant flow and the content of carbon dioxide in inhaled air was measured.

6. Research methods

Test methodology in accordance with the standard PN-EN 149+A1:2010 and laboratory research procedures:

- D-8 „Oznaczanie stężenia CO₂ we wdychanym powietrzu,” ed. 13 z 25.05.2020;

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- D-2 „Pomiary oporów przepływu powietrza przez materiały filtracyjne, maski, półmaski, półmaski filtrujące, filtry, pochłaniacze i filtropochłaniacze,” ed. 12 z 25.05.2020.

7. Test results

7.1 Measurement of the content of carbon dioxide in inhaled air

Test was conducted on 09.06.2020 r.

Table 2. Test results of measurement of the content of carbon dioxide in inhaled air for AIBANA 001 half masks.

Sample No	CO ₂ Concentration [%]	Measurement uncertainty	Statement of compliance	Comments
235/XXVI/2020	0,54	0,04	Compliant	A.R.
236/XXVI/2020	0,60	0,02	Compliant	A.R.
237/XXVI/2020	0,57	0,03	Compliant	A.R.

A.R. – as received

T.C. – temperature conditioning

M.S. – mechanical strength test

S.W. – simulation of conditions of use

7.2 Inhalation resistance in constant flow

Test was conducted on 17.06.2020 r.

Table 3. Test results of measurement of inhalation resistance in constant flow ($Q=1,8 \text{ m}^3/\text{h}$) for AIBANA 001 half masks.

Sample No	Resistance [Pa] for $Q=1,8 \text{ m}^3/\text{h}$	Measurement uncertainty	Statement of compliance	Comments
226/XXVI/2020	35,4	0,6	Compliant	T.C./M.S.
227/XXVI/2020	43,0	1,3	Compliant	T.C./M.S.
228/XXVI/2020	37,3	0,4	Compliant	T.C./M.S.
229/XXVI/2020	59,1	0,1	Compliant	A.R.
230/XXVI/2020	25,1	1,6	Compliant	A.R.
231/XXVI/2020	34,4	0,8	Compliant	A.R.
232/XXVI/2020	32,0	0,2	Compliant	S.W.
233/XXVI/2020	31,9	1,5	Compliant	S.W.
234/XXVI/2020	40,9	0,9	Compliant	S.W.

A.R. – as received

T.C. – temperature conditioning

M.S. – mechanical strength test

S.W. – simulation of conditions of use

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Table 4. Test results of measurement of inhalation resistance in constant flow ($Q=5,7 \text{ m}^3/\text{h}$) for AIBANA 001 half masks.

Sample No	Resistance [Pa] for $Q=5,7 \text{ m}^3/\text{h}$	Measurement uncertainty	Statement of compliance	Comments
226/XXVI/2020	206,7	0,5	Compliant	T.C./M.S.
227/XXVI/2020	203,8	1,2	Compliant	T.C./M.S.
228/XXVI/2020	192,8	1,4	Compliant	T.C./M.S.
229/XXVI/2020	202,9	2,0	Compliant	A.R.
230/XXVI/2020	154,3	1,2	Compliant	A.R.
231/XXVI/2020	175,2	1,0	Compliant	A.R.
232/XXVI/2020	170,5	0,8	Compliant	S.W.
233/XXVI/2020	168,6	1,2	Compliant	S.W.
234/XXVI/2020	209,0	0,8	Compliant	S.W.

A.R. – as received

T.C. – temperature conditioning

M.S. – mechanical strength test

S.W. – simulation of conditions of use

Research has been done by:

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23.06.2020

END OF REPORT

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