Testing report no. 251/2020

Number of pages of the report	: 4	Number of printouts:	3
Number of attachments:	0	Printout no.:	1
Ordering party of test:	PARDAM, s.r.o., Žižkov	a 2759, Roudnice nad Labem	
Subject of test:	Antibacterial respirator	BreaSAFE ANTI-COVID-19	
Name of test:	Test in accordance with ČSN EN 149+A1		
Receipt of sample:	21. April 2020		
Test performed:	16. April – 21. April 202	0	
Report issued:	24. April 2020		

Employee authorized to sign the report:

[OSRI stamp]

[Signature]

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Ing. Lukáš Zavřel head of OSRI – ZL

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The results of the tests refer only to the subject of the test and do not replace other documents (e.g. of administrative character, certificates, etc.), that are required by the state professional supervision bodies according to specific regulations.

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1. Basic information

Antibacterial respirator **BreaSAFE** is designed for protection of respiratory organs of the user against SARS-CoV-2 only, according to the instruction manual of the manufacturer.

The tests are designed for the needs of module B, samples of the respirator BreaSAFE for laboratory tests were provided by the manufacturer on 16. April 2020 in quantity of 8 pcs and on 21. April 2020 in quantity of 6 pcs. The samples were recorded in the Book of samples of the laboratory under numbers 2364 - 2370 and 2611 - 2616 with the request number S-264/2020.

2. Test regulations, methods and procedures

The following norms and regulations were used during the tests: ČSN EN 149:2002+A1:2009, ČSN EN 149+A1 CORRECTION 1:2018 Protecting aids for respiratory organs. Filtrating half-masks for protection against particles. Requirements, testing, marking.

RfU – PPE-R/02.075 version 1

Update of methods

Was not used

Differences and additions of testing specifications

The tests were performed in accordance with RfU – PPE-R/02.075 version 1

3. Used devices

Stopwatch JVD ST 80.2 Thermometer type Centigrade 0.1 Testing device for assessment of breathing resistances INSPEC Device for testing by aerosol NaCl from MOORE'S type 1100 Generator of aerosol NaCl type 4000 Device for testing of filters by aerosol of paraffin oil LORENZ type BIA Manometer GDH 200-07 Rotameter Yokogawa P052 Rotameter Yokogawa P161 Artificial lungs INSPEC Sheffield head IR analyzer CO2 Guardian II IR analyzer CO2 Guardian NG Teflon rotameter Cole-Parmer Metrological securing Metrological securing of the devices is performed in compliance with the metrological order OSRI-ZL

4. Tests

Test results

The tests were performed in the laboratory of protection of the respiratory system and in the textile laboratory OSRI-ZL.

4.1 Testing by outer evaluation article 8.2

Filtrating half-masks do not have any sharp parts nor burrs. The marking meets the requirements of the technical regulation.

4.2 Assessment of penetration of aerosols article 8.11

4.2.1 Test by sodium chloride

sam	ple	condition	penetration %
236	64	AR	5.33
236	5	AR	5.16
236	6	AR	5.24
Note:	lote: AR – as received		

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ingrest measured value of derosof vale penetration				
sample	condition	penetration in %	time of the highest measured value in minutes	
2364	AR	4.89	3	

Highest measured value of aerosol NaCl penetration

4.2.2 Test by paraffin oil

sample	condition	penetration %
2367	AR	1.9
2368	AR	2.3
2369	AR	2.1

Penetration of paraffin oil aerosol after dosage of 120 mg of oil

sample	condition	penetration in %
2367	AR	2.5

4.3 Assessment of concentration of carbon dioxide in inhaled air article 8.7

sample	condition	concentration of CO ₂ in vol. %
2611	AR	0.38
2612	AR	0.44
2613	AR	0.42
average		0.41

4.4. Practical test by wearing article 8.4

The half-mask slightly presses on the nose, other negative findings in the tested half-mask were not determined.

4.5 Assessment of breathing resistances article 8.9

4.5.1 Inhaling resistance

comple		resistance in Pa		
Sample	condition	at 30 l/min	at 95 l/min	
2364	AR	57	150	
2365	AR	65	151	
2366	AR	57	155	

4.5.2 Exhaling resistance

		position				
sample	condition	forward	up	down	left	right
		Ра	Ра	Ра	Ра	Ра
2364	AR	260	260	262	262	260
2365	AR	256	255	259	250	252
2366	AR	278	276	280	271	272

Table of measurement uncertainties

Number of the test in the report	Total extended relative uncertainty in %
4.3.1	4.16
4.3.2	2.00
4.4	3.25
4.6	1.91

Presented measurement uncertainties are an extended standard uncertainty calculated on the basis of a determinant deviation, which is multiplied by coefficient k=2 (which ensures approximately 95% reliability interval).

Report prepared by: Ing. Lukáš Zavřel

_____end of report______