UNIVERSAL
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TS EN ISO/IEC 17025
AB-1693-T

AB-1693-T

Report No
T1013

10-21

UNIVERSAL CERTIFICATION CONFORMITY ASSESSMENT CO.
Tatlisu Mah. Arif Ay Sk. No:16/3 Umraniye, Istanbul / TURKEY

TEST REPORT

CLIENT and SAMPLE INFORMATION

TEST OWNER	Tamiş İş Güvenliği Ekipmanlari Ltd.		
ADDRESS	İkitelli O.S.B. Mahallesi Mutsan Sanayi Sitesi M4 Blok No:30 Başakşehir / İstanbul		
MANUFACTURER	Tamiş İş Güvenliği Ekipmanlari Ltd.		
SAMPLE DESCRIPTION	Folding type protective mask		
BRAND NAME – MODEL	ANT Y21 FFP2		
CASE NUMBER	CE-PPE-4122		
SAMPLE RECEIVE DATE	22.09.2021		
STARTING DATE	22.09.2021	FINISH DATE	13 10.2021
REMARKS	-		
NUMBER OF PAGES OF THE REPORT	10		
NUMBER OF SAMPLES	52	SAMPLE IDs	1 – 52
AS RECEIVED SAMPLE NO	26-46, 50		
CONDITIONING SAMPLE NO	Simulated Wearing Treatment		1-2-3-4-5-6-7-8-9 (As Received)
	Temperature Conditioning (T.C.)		10-11-12-13-14-15 (Sample after test of Mechanical Strength)
			16-17-18-19-20-21-22-23-24-25-51 (As Received)
	Mechanical Strength		10-11-12-13-14-15-52 (As Received)
	Flow Conditioning (Only for particle filtering half masks with valve.)		47 (As Received) 48-49 (Sample after test of Temperature conditioning)

Universal Certification accredited by TÜRKAK under registration number AB-1693-T for TS EN ISO / IEC 17025:2017 as test laboratory.

Turkish Accreditation Agency (TURKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreement (MLA) and to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports.

The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of this report.

ISSUE DATE
18.10.2021

TEST REVIEW

APPROVAL

TESTED BY

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NOTE 1

The results given in this test report belongs to the samples tested.

NOTE 2

Requirements are taken from the EN 149: 2001 + A1: 2009 standard and the evaluation of results carried out according to these requirements.

NOTE 3

Information about conditioning;

Simulated wearing treatment:

A breathing machine is adjusted to 25 cycles/min and 2,0 l/stroke. The particle filtering half mask is mounted on a Sheffield dummy head. For testing, a saturator was incorporated in the exhalation line between the breathing machine and the dummy head, the saturator being set at a temperature in excess of 37 ºC to allow for the cooling of the air before it reaches the mouth of the dummy head. The air saturated at (37 ±2) ºC at the mouth of the dummy head.

In order to prevent excess water spilling out of the dummy's mouth and contaminating the particle filtering half mask the head inclined so that the water runs away from the mouth and is collected in a trap.

The breathing machine is brought into operation, the saturator switched on and the apparatus allowed to stabilize. The particle filtering half mask under the mounted on the dummy head. During the test time at approximately 20 min intervals the particle filtering half mask completely removed from the dummy head and refitted such that during the test period it is period it is fitted ten times to the dummy head.

Temperature conditioning (T.C.):

Exposed the particle filtering half masks to the following thermal cycle:

a) *For 24 h to dry atmosphere of (70±3) ºC;*
b) *For 24 h to dry atmosphere of (-30±3) ºC;*
   And allowed to return room temperature for at least 4 h between exposures and prior to subsequent testing.
   The conditioning carried out in a manner which ensured that no thermal shock occurs.

Mechanical strength:

After the masks / strainers are removed from their packaging (if they have seals on them, they are not opened) they are placed in the wide channels on the upper table of the device horizontally and not touching each other.

The device set and operated to operate at 100 revolutions per minute and the conditioning time to be 20 minutes.

As a result of the experiment, it was checked that any deterioration in the masks / strainers or the disassembled parts have not loosened or separated in any way.

Flow conditioning:

A total of 3 valved particle filtering half masks tested, one as received and two temperature conditioned in accordance with temperature.

NOTE 4

Information about evaluation;

Passed	*Results are suitable to requirements.*
Failed	*Results are not suitable to requirements.*
NAs	*Assessment not carried out.*
N/A	*Requirement not applicable.*

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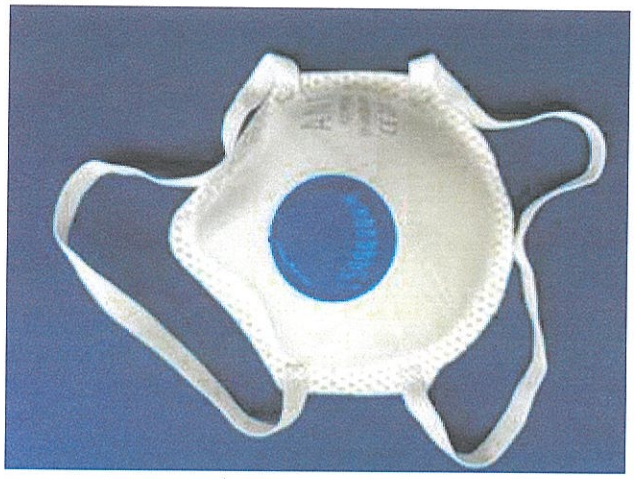
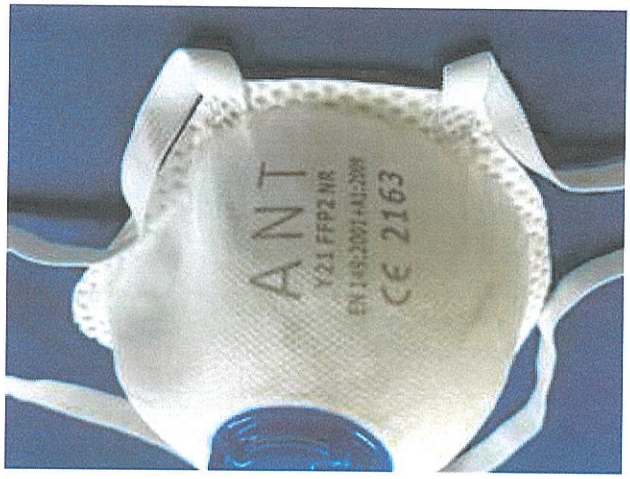
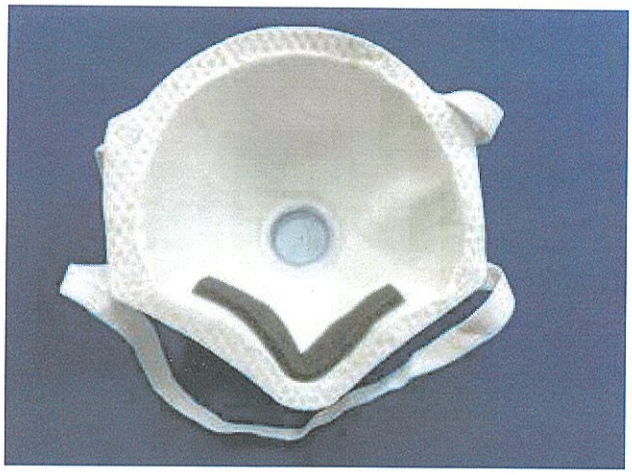
NOTE 5

*In case of conformity assessment, in tests within the scope of TS EN ISO/IEC 17025:2017 accreditation upon customer request; The Simple Acceptance Decision Rule is used. If requested by the customer, the k=2 coverage factor and the measurement uncertainty value at 95% confidence level are specified in the report for the requested tests. Tests marked with * in this report are not included in the scope of accreditation.*

SAMPLE PHOTOS







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2. TEST RESULTS, REQUIREMENTS and EVALUATION

7.4 PACKAGING

Test Method: EN 149:2001 + A1:2009

RESULTS	REQUIREMENTS	EVALUATION
The masks were packaged in sealed inside original box that gave some protection against mechanical damage or contamination before use.	Particle filtering half masks shall be offered for sale packaged in such a way that they are protected against mechanical damage and contamination before use.	Passed

7.5 MATERIAL

Test Method: EN 149:2001 + A1:2009

RESULTS	REQUIREMENTS	EVALUATION
Materials used are suitable to withstand handling and wear during the limited laboratory testing carried out.	Materials used shall be suitable to withstand handling and wear over the period for which the particle filtering half mask is designed to be used.	Passed
It did not constitute a hazard or nuisance for the wearer.	Any material from the filter media released by the air flow through the filter shall not constitute a hazard or nuisance for the wearer.	Passed
None of specimens conditioned suffered mechanical failure.	After undergoing the conditioning described in 8.3.1 none of the particle filtering half masks shall have suffered mechanical failure of the facepiece or straps.	Passed
None of the specimens did not collapse after conditioning.	When conditioned in accordance with 8.3.1 and 8.3.2 the particle filtering half mask shall not collapse.	Passed

7.6 CLEANING AND DISINFECTING

Test Method: EN 149:2001 + A1:2009

RESULTS	REQUIREMENTS	EVALUATION
This analysis is not applicable because the masks are single use.	If the particle filtering half mask is designed to be re-usable, the materials used shall withstand the cleaning and disinfecting agents and procedures to be specified by the manufacturer. With reference to 7.9.2, after cleaning and disinfecting the re-usable particle filtering half mask shall satisfy the penetration requirement of the relevant class.	N/A

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7.7 PRACTICAL PERFORMANCE

Test Method: EN 149:2001 + A1:2009

The test results obtained are given in the table as follows,

Numbers of samples : 29, 30 (A.R)[1]

ASSESSED ELEMENTS	POSITIVE ASSESSMENT	NEGATIVE ASSESSMENT	RESULTS	REQUIREMENTS	EVALUATION
The face piece fitting	2	0	No imperfections	Filtering half masks should not have imperfections related to wearer's acceptance.	Passed
Head harness comfort	2	0			
Security of fastenings	2	0			
Field of vision	2	0			

[1]: *As received*

7.8 FINISH OF PARTS

Test Method: EN 149:2001 + A1:2009

RESULTS	REQUIREMENTS	EVALUATION
None of the specimens used in laboratory have no sharp edges or burrs.	Parts of the device likely to come into contact with the wearer shall have no sharp edges or burrs.	Passed

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7.9.1 TOTAL INWARD LEAKAGE

Test Method: EN 149:2001 + A1:2009

REQUIREMENTS	EVALUATION
The total inward leakage consists of three components: face seal leakage, exhalation value leakage (if exhalation value fitted) and filter penetration. For particle filtering half masks fitted in accordance with the manufacturer's information, at least 46 out of the 50 individual results shall be not greater than: 25 % for FFP1, 11 % for FFP2, 5 % for FFP3 and in addition at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall not be greater than: 22 % for FFP1, 8 % for FFP2, 2 % for FFP3	Qualifies FFP2

The test results obtained are given in the tables as follows,

TEST SUBJECT	NO OF SAMPLE	CONDITION	1. WALK (%)	HEAD SIDE/ SIDE (%)	HEAD UP/DOWN (%)	TALK (%)	2. WALK (%)	AVERAGE (%)
A.K.D	31	A.R.	10,09	**11,49**	10,90	10,41	6,37	**9,85**
.K.D	32	A.R.	8,01	3,68	6,10	2,58	1,62	4,40
S.G	33	A.R.	9,67	10,56	**11,28**	10,88	9,71	**10,42**
Z.Y	34	A.R.	2,82	3,40	2,77	0,86	1,55	2,28
E.C	35	A.R.	6,26	5,86	5,14	3,29	2,35	4,58
M.E	16	T.C.	1,93	3,54	1,88	1,35	1,19	2,73
U.A	17	T.C.	1,24	1,12	1,42	2,34	1,62	1,55
E.D	18	T.C.	2,24	1,92	1,74	1,42	2,04	1,87
C.A	19	T.C.	4,71	3,55	2,71	1,70	2,00	2,93
C.Y	20	T.C.	5,01	4,38	3,36	2,01	1,68	3,29

48 out of the 50 individual exercise results were not greater than 11 %
8 out of the 10 individual wearer arithmetic means were not greater than 8 %

The information in the test subject column is the initial of the candidates who performed the test.

***1.Walk**: walking for 2 min without head movement or talking;*

***Head side/side:** walking turning head from side to side (approximately 15 times), as if inspecting the walls of a tunnel for 2 min;*

***Head up/down:** walking and moving head up and down (approximately 15 times), as if inspecting the ceiling and floor for 2 min;*

***Talk:** walking and reciting the alphabet or an agreed text out loud as if communicating with a colleague for 2 min;*
***2.Walk:** walking for 2 min without head movement or talking*

Test Subject	Face Length (mm)	Face Width (mm)	Face Depth (mm)	Mouth Width (mm)
A.K.D	128	140	136	53
.K.D	125	138	140	55
S.G	145	143	140	60
Z.Y	125	135	130	55
E.C	130	140	135	55
M.E	131	135	136	60
U.A	120	140	124	52
E.D	135	130	135	55
C.A	123	145	125	63
C.Y	125	160	145	65

For Information Only

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7.9.2 PENETRATION OF FILTER MATERIAL

Test Method: EN 149:2001 + A1:2009

The test results obtained are given in the tables as follows,

NO. OF SAMPLE	CONDITION	RESULTS Penetration of **Sodium Chloride** in accordance with EN 13274-7:2019 [%] Flow rate 95 l/min	REQUIREMENTS	EVALUATION
36	As received	3,99	FFP1 ≤ 20 % FFP2 ≤ 6 % FFP3 ≤ 1 %	Passed Qualifies FFP1, FFP2
37		5,90		
38		4,74		
1	Simulated wearing treatment	1,80		
2		1,42		
3		0,91		
10	Mechanical strength + Temperature conditioned	1,13		
11		2,73		
12		2,85		

Results for samples 10, 11 and 12 is taken by exposure test. (the mask is loaded 120mg of NaCl)

NO. OF SAMPLE	CONDITION	RESULTS Penetration of **Paraffin Oil** Mist in accordance with EN 13274-7:2019 [%] Flow rate 95 l/min	REQUIREMENTS	EVALUATION
39	As received	4,22	FFP1 ≤ 20 % FFP2 ≤ 6 % FFP3 ≤ 1 %	Passed Qualifies FFP1, FFP2
40		3,75		
41		4,47		
4	Simulated wearing treatment	4,87		
5		3,32		
6		1,94		
13	Mechanical strength + Temperature conditioned	3,67		
14		3,87		
15		4,14		

Results for samples 13,14 and 15 is taken by exposure test. (the mask is loaded 120mg of Paraffin Oil)

7.10 COMPATIBILITY WITH SKIN

Test Method: EN 149:2001 + A1:2009

RESULTS	REQUIREMENTS	EVALUATION
No irritation or any other adverse effect to health or sensitivity reported by the subjects during the practical performance and TIL tests.	Materials that may come into contact with the wearer's skin shall not be known to be likely to cause irritation or any other adverse effect to health.	Passed

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7.11 FLAMMABILITY

Test Method: EN 149:2001 + A1:2009

The test results obtained are given in the tables as follows,

NO. OF SAMPLE	CONDITION	VISUAL INSPECTION/ TIME (s)	REQUIREMENTS	EVALUATION
45	As received	0	Filtering half mask shall not burn or not continue to burn for more than 5 s after removal from the flame.	Passed
46		0		
21	Temperature conditioned	0		
22		0		

7.12 CARBON DIOXIDE CONTENT OF THE INHALATION AIR

Test Method: EN 149:2001 + A1:2009

The test results obtained are given in the tables as follows,

NO. OF SAMPLE	CONDITION	RESULTS CO_2 Content Of The Inhalation Air [%] By Volume	RESULTS An Average CO_2 Content Of The Inhalation Air [%] By Volume	REQUIREMENTS	EVALUATION
26	As received	0,42	0,42	CO_2 content of the inhalation air shall not exceed an average of 1,0% by volume.	Passed
27		0,41			
28		0,43			

7.13 HEAD HARNESS

Test Method: EN 149:2001 + A1:2009

RESULTS	REQUIREMENTS	EVALUATION
There is no problem with the head harness reported by the wearers during the practical performance test.	The head harness shall be designed so that the particle filtering half-mask can be donned and removed easily.	Passed
There is no problem with the head harness reported by the wearers during the practical performance test.	The head harness shall be adjustable or self-adjusting and shall be sufficiently robust to hold the particle filtering half mask firmly in position and capable of maintaining total inward leakage requirements for the device.	Passed

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7.14 FIELD OF VISION

Test Method: EN 149:2001 + A1:2009

RESULTS	REQUIREMENTS	EVALUATION
There were no adverse comments following practical performance tests	The field of vision is acceptable if determ ned so in practical performance tests.	Passed

7.15 EXHALATION VALVE

Test Method: EN 149:2001 + A1:2009

NO. OF SAMPLE	RESULTS	REQUIREMENTS	EVALUATION
50 (As Received) 51 (Temperature conditioned) 52 (Mechanical strength conditioned)	No exhalation valve in tested samples.	A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations.	N/A
	No exhalation valve in tested samples.	If an exhalation valve is provided it shall be protected against or be resistant to dirt and mechanical damage and may be shrouded or may include any other device that may be necessary for the particle filtering half mask to comply with 7.9	N/A
	No exhalation valve in tested samples.	Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min over a period of 30s.	N/A
	No exhalation valve in tested samples.	When the exhalation valve housing is attached to the face blank, it sha l withstand axially a tensile force of 10N applied for 10s.	N/A

7.16 BREATHING RESISTANCE

Test Method: EN 149:2001 + A1:2009

The test results obtained are given in the tables as follows,

Inhalation Resistance

NO. OF SAMPLE	CONDITION	FLOW RATE 30 l/min [mbar]	REQUIREMENTS	FLOW RATE 95 l/min [mbar]	REQUIREMENTS	EVALUATION
42	As received	0,50	FFP1 ≤ 0,60 FFP2 ≤ 0,70 FFP3 ≤ 1,0	1,85	FFP1 ≤ 2,10 FFP2 ≤ 2,40 FFP3 ≤ 3,00	Passed Qualifies FFP1,FFP2, FFP3
43		0,49		1,84		
44		0,52		1,92		
7	Simulated wearing treatment	0,66		2,14		
8		0,68		2,25		
9		0,56		2,03		
23	Temperature conditioned	0,61		2,09		
24		0,65		2,23		
25		0,63		2,16		
47	Flow conditioned	0,54		1,91		
48		0,60		2,01		
49		0,60		2,05		

Exhalation Resistance

NO. OF SAMPLE	CONDITION	FLOW RATE	Facing directly [mbar]	Facing vertically upwards [mbar]	Facing vertically downwards [mbar]	Lying on the left side [mbar]	Lying on the right side [mbar]	REQUIREMENTS	EVALUATION
42	As received	160 l/min	2,52	2,51	2,48	2,46	2,47	FFP1 ≤ 3,0 FFP2 ≤ 3,0 FFP3 ≤ 3,0	Passed Qualifies FFP1,FFP2, FFP3
43			2,64	2,62	2,60	2,62	2,63		
44			2,65	2,61	2,62	2,59	2,58		
7	Simulated wearing treatment		2,71	2,68	2,63	2,60	2,72		
8			2,94	2,91	2,91	2,88	2,85		
9			2,70	2,69	2,67	2,67	2,69		
23	Temperature conditioned		2,61	2,58	2,55	2,54	2,53		
24			2,48	2,47	2,46	2,47	2,46		
25			2,53	2,51	2,50	2,49	2,50		
47	Flow conditioned		2,65	6,69	2,66	2,65	2,68		
48			2,57	2,60	2,61	2,58	2,62		
49			2,65	2,64	2,63	2,62	2,65		

7.18 DEMOUNTABLE PARTS

Test Method: EN 149:2001 + A1:2009

RESULTS	REQUIREMENTS	EVALUATION
No demountable part.	All demountable parts (if fitted) shall be readily connected and secured, where possible by hand.	N/A

-End of Report-

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