



In enforcement of Regulation 2016/425 of the European Parliament and of the Council In enforcement of Regulation 2016/425 of the European Paniament and of the Council
of 9<sup>th</sup> March 2016 on Personal Protective Equipment and repealing the Directive 89/686/EEC and in
compliance with the Module B Certification Scheme of Apave 'M.MEPI.45' in force,
En exécution du Règlement 2016/425 du Parlement Européen et du Conseil du 9 mars 2016 relatif aux Equipements de Protection
Individuelle et abrogeant la Directive 89/686/CEE et en respect du Programme de Certification Module B de l'Apave 'M.MEPI.45' en vigueur,

APAVE Sudeurope SAS, notified body identified under number 0082, awards the APAVE Sudeurope SAS, organisme notifié identifié sous le numéro 0082, attribue l'

#### EU TYPE-EXAMINATION CERTIFICATE Attestation d'examen UE de type N° 0082/3857/079/02/21/0094

The following PPE type complies with the applicable essential health and safety requirements Le type de l'EPI suivant est conforme aux exigences essentielles de santé et de sécurité applicables

PPE: PPE category III - Filtering half mask to protect against particles with and without exhalation

EPI: EPI de catégorie III - Demi-masque filtrant contre les particules avec et sans soupape expiratoire

Type: Type

Trademark: EFAS PROTECT

FFP2 NR

Marque commerciale

This certificate is awarded to the 2 following references: La présente attestation est attribuée aux 2 références suivantes :

- SA1500 - Specificity : valveless Spécificité : sans valve

- SA1510 - Specificity: with valve Spécificité : avec valve

Manufacturer: AEREM INDUSTRY CO LTD - Workshop No.54 - Road 1-7 - Long Thanh IZ - TAM

Fabricant AN COMMUNE - Long Thanh District - Dong Nai Pr - Vietnam

Authorised representative: Aeremn Industry Sp. Zo.o.- UI.Lubczynska 6F 70-895 SZCZECIN - Poland Mandataire

Description: Filtering half mask to protect against particles class FFP2 NR with or without exhalation

valve in polypropylene and rubber for single shift use only. The half mask is foldable with a vertical fold flat shape, designed with a noseclip in high-density polyethylene iron platine zinc and two self-adjusting ear loop in nylon and spandex. The filter media is composed of three layers in polypropylene and electret masterbatch and one layer in polyethylene ethylene-propylene sidebyside (detailed description in EU type examination report

20.1900).

Description: Demi-masque filtrant contre les particules classe FFP2 NR avec ou sans soupape expiratoire en polypropylène

et caoutchouc à usage unique. Le demi-masque est de forme plate à pliage verticale, conçu avec une barrette nasale en haute densité poyethylène et deux brides auto-réglables en nylon et spandex portées derrière les oreilles. Le média filtrant est composé de trois couches en polypropylène et une couche en polyéthylène

éthylène-propylène sidebyside (description détaillée dans le rapport d'examen UE de type 20.1900).

Technical referential in use: EN 149: 2001 + A1: 2009

Référentiel technique utilisé

Date of signature (day/month/year): 11/02/2021

Date de signature (jour/mois/année)

Date of issue (day/month/year): 11/02/2021

Date de délivrance (jour/mois/année)

Date of renewal (day/month/year): first edition 1<sup>ère</sup> édition Date de renouvellement (jour/mois/année)

Date of expiry (day/month/year):

11/02/2026

Date d'expiration (jour/mois/année)

**PPE Certification Manager** 

Le Responsable de la Certification EPI

Immaterial original

**Apave Sudeurope SAS** Centre d'Essais et de Certification EPI 17. Boulevard Paul Langevin 38600 FONTAINE - France Tél. +33.(0)4.76.53.52.22

Accréditation N° 5-0596 Scope available on

Portée disponible sur

www.cofrac.fr

For category III PPE, the certificate shall only be used in conjunction with one of the conformity assessment procedures referred in point c) of Article 19 Pour les EPI de catégorie III, l'attestation ne doit être utilisée qu'en liaison avec l'une des procédures d'évaluation de la conformité visées à l'article 19, point c).

The manufacturer shall inform the notified body of all modifications to the approved type and of all modifications of the technical documentation that may affect the conformity of the PPE with the applicable essential health and safety requirements or the conditions for validity of that certificate (article 7.2 – annex V)

Le fabricant informe l'organisme notifié de toutes les modifications du type approuvé et de toutes les modifications de la documentation technique qui peuvent remettre en cause la conformité de l'EPI aux exigences essentielles de santé et de sécurité applicables ou les conditions de validité de cette attestation (article 7.2 – annexe V)



Centre d'Essais de Fontaine 17, Boulevard Paul Langevin 38600 FONTAINE - France Tél. +33.(0)4.76.53.52.22 Fax +33.(0)4.76.53.32.40

#### **AEREM INDUSTRY CO LTD**

Workshop No.54 - Road 1-7 - Long Thanh IZ TAM AN COMMUNE - Long Thanh District - Dong Nai Province Vietnam

# PPE REGULATION 2016/425 – ANNEX V MODULE B – EU TYPE EXAMINATION ASSESSMENT REPORT

Respiratory protective device

Report n° 20.1900 - English version

Technical referential **EN 149 : 2001 + A1 : 2009** 

PPE category III

Type of device Filtering half mask to protect against particles

with and without exhalation valve

Class FFP2 NR

Trade mark **EFAS PROTECT** 

References SA1500 – Specificity: valveless

**SA1510** – Specificity: with breathing valve

Fontaine, the 11/02/2021

Report sent for the attention of Marina BERNARD and Hadrien ROUBERT to the email addresses below: mbernard@aerem.com and hroubert@aerem.com

This report includes 17 pages

The technical assessment manager Immaterial original

RASCLOFONIAINA YERnie

M.MEPI.324.V1

Validation électronique



# **Summary**

- 1. Introduction Description of the service
- 2. Use of the report
- 3. Economical operator(s)
- 4. Identification of the equipment
- 5. Conditions for use of the equipment
- 6. Reference specification
- 7. Technical Documentation
- 8. Correlation between the articles of PPE Regulation 2016/425 and the reference standard
- 9. Examination report
- 10. Conclusion



#### 1.Introduction - Description of the service

This assessment report concerns PPE category III – Filtering half mask to protect against particles with and without exhalation valve as defined in EN 149 : 2001 + A1 : 2009.

Its purpose is to assess the conformity of the PPE with the PPE REGULATION 2016/425, with a view to be placed on the European market exclusively.

The assessment was conducted in accordance with purchase order signed on 24/11/2020 placed by Aeremn Industry Sp. Zo.o. for the count of AEREM INDUSTRY CO LTD.

Company: AEREM INDUSTRY CO LTD - Workshop No.54 - Road 1-7 - Long Thanh IZ - TAM AN COMMUNE - Long Thanh District - Dong Nai Province - Vietnam

#### 2.Use of the report

This assessment report only concerns the equipment identified in clause 4 and described in clause 7.

Only an integral reproduction of this assessment report is authorized.

The manufacturer, or his representative, commits himself not to use this assessment report for equipment that is not strictly identical to the equipment covered by this assessment report.

#### 3.Economical operator(s)

Manufacturer and manufacturing site: AEREM INDUSTRY CO LTD - Workshop No.54 - Road 1-7

Long Thanh IZ - TAM AN COMMUNE Long Thanh District

Dong Nai Province – Vietnam

Authorized representative: Aeremn Industry Sp. Zo.o.- UI.Lubczynska 6F 70-895 SZCZECIN - Poland

#### 4.Identification of the equipment

Class: FFP2 NR

Trade mark: EFAS PROTECT

Reference: SA1500 – Specificity: valveless

Class: FFP2 NR

Trade mark: EFAS PROTECT

Reference: SA1511 – Specificity: with breathing valve

## 5. Conditions for use of the equipment

This filtering half mask is intended to be used as respiratory protective devices to protect against particles except for escape purposes.

### 6.Reference specification

The assessment of conformity with Regulation 2016/425 of 9<sup>th</sup> march 2016 "Personal Protective Equipment" was conducted taking into account the provisions of European standard EN 149 : 2001 + A1 : 2009 "Respiratory protective device – Filtering half mask to protect against particles".



#### 7.Technical Documentation

#### 7.1.Identification

Identification of the assessed Technical Documentation:

- Authorized representative Company: Hadrien ROUBERT AEREM INDUSTRY CO LTD
   Commitment signature date: 15/12/2020
   Technical Documentation reference: 20.1900

#### 7.2.Drawing





Reference SA1501

Reference SA1510



#### 7.3.Description

Filtering half mask to protect against particles class FFP2 NR with or without exhalation valve in polypropylene and rubber for single shift use only. The half mask is foldable with a vertical fold flat shape, designed with a noseclip in high-density polyethylene iron platine zinc and two self-adjusting ear loop in nylon and spandex. The filter media is composed of three layers in polypropylene and electret masterbatch and one layer in polyethylene ethylene-propylene sidebyside.

#### 7.4. Description of components

Detailed description of components in the Technical Documentation.

#### 7.5.CE Marking

\* Notified body in charge of assessment control to article 19c) of PPE regulation (module C2 or D):

**APAVE SUDEUROPE SAS - France** 

**CE 0082 CE 0082** 

**✗** Graphic of letters C and E: Conform

★ Height of mark: 8 mm

Marking clear and permanent: Conform

\* Location of the marking: Inkjet printed on the external part of the mask

#### 7.6. Packaging

Month and year of obsolescence is indelibly and unambiguously marked on the packaging



# 8. Correlation between the articles of PPE Regulation 2016/425 and the reference standard

The following table shows the correlation between the essential health and safety requirements of Regulation 2016/425 of 9th march 2016 "Personal Protective Equipment" and the articles of the European standard EN 149: 2001 + A1: 2009 "Respiratory protective device – Filtering half mask to protect against particles".

PPE Regulation 2016/425	Clauses of the standard					
Annex II	Olauses of the standard					
1.1.1	5 ; 7.8 ; 7.9					
1.1.2.1	5 ; 7.8 ; 7.9					
1.1.2.2	7.8 ; 7.9					
1.2.1	7.6					
1.2.1.1	7.6 ; 7.7 ; 7.10 ; 7.11					
1.2.1.2	7.8					
1.2.1.3	7.8 ; 7.13					
1.3.1	7.8 ; 7.13					
1.3.2	7.8 ; 7.13 ; 7.15.2					
1.4	10					
2.1	7.13					
2.3	7.14					
2.4	9 ; 10					
2.6	10					
2.8	10					
2.9	7.13 ; 7.18					
2.12	9					
3.10.1	7.6; 7.7; 7.8; 7.9; 7.12; 7.16; 7.17; 9; 10					

WARNING: Other requirements and other EU Directives maybe applicable to the products falling within the scope of this European Standard.



## 9.Examination report

Article of		Co	nform	ity*	
the standard EN 149+A1	Content	Yes	No	N-A	Comments
Art. 7	Requirements				
Art 7.1	Visual inspection	✓			Date of test:
	The visual inspection shall also include the marking and the information supplied by the manufacturer				08/12/2020
Art 7.4	Packaging	✓			
	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.				
Art 7.5	Material	✓			Date of test:
	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.  After undergoing the simulated wearing treatment none of the particle filtering half masks shall have suffered mechanical failure of the facepiece or straps.  Three particle filtering half masks shall be tested.  When conditioned, the particle filtering half mask shall not collapse.  Any material from the filter media released by the air flow through the filter shall not constitute a hazard or nuisance for the wearer.				07/01/2021
Art 7.6	Cleaning and disinfecting			✓	
	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." After cleaning and disinfecting the re-usable particle filtering half mask shall satisfy the penetration requirement of the relevant class.				

<sup>\*</sup> The measurement uncertainties are not taken into account for the assessment of conformity.



Article of the		Co	nform	ity*	
standard EN 149+A1	Content	Yes	No	N-A	Comments
Art 7.7	Practical performance The particle filtering half mask shall undergo practical performance tests under realistic conditions. These general tests serve the purpose of checking the equipment for imperfections that cannot be determined by the tests described elsewhere in this standard. Where practical performance tests show the apparatus has imperfections related to wearer's acceptance, the test houses hall provide full details of those parts of the practical performance tests which revealed these imperfections.				Date of test: 15/01/2021 any imperfections determined
Art 7.8	Here are the comments of the test subjects: a) head harness comfort b) security of fastenings c) field of vision d) any other comments reported by the wearer on request Finish of parts Parts of the device likely to come into contact with the wearer shall have no sharp edges or burrs	✓ ✓ ✓ ✓			No comment No comment No comment No comment

<sup>\*</sup> The measurement uncertainties are not taken into account for the assessment of conformity.



Article of the		Co	nform	ity*	
standard EN 149+A1	Content	Yes	No	N-A	Comments
Art 7.9	Leakage				
Art 7.9.1	Total inward leakage  The laboratory tests shall indicate that the particle filtering half mask can be used by the wearer to protect with high probability against the potential hazard to be expected.  The total inward leakage consists of three components: face seal leakage, exhalation valve leakage (if exhalation valve 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 exercise results (i.e.10 subjects x 5 exercises) for total inward leakage shall be not greater than:  11 % for FFP2  and, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than:  8 % for FFP2	✓ ✓			Date of test: 15/01/2021  Without valve: 50 results ≤ 11% 10 averages ≤ 8%  With valve: 48 results ≤ 11% 9 averages ≤ 8%

<sup>\*</sup> The measurement uncertainties are not taken into account for the assessment of conformity.

		Half mask without valve								
Exercise				Te	st subje	ct refere	nce			
	1	2	3	4	5	6	7	8	9	10
Walk	0,2	0,2	0,2	1,3	0,6	0,3	0,6	7,3	1,2	0,7
Left-Right	0,2	0,7	1,1	1,1	1,8	0,6	1,0	5,5	3,6	3,5
Up-Down	1,2	0,9	1,0	2,2	1,4	1,0	1,0	9,3	7,3	4,1
Alphabet	0,7	0,9	1,7	2,5	0,7	1,6	1,9	4,3	4,2	5,7
Walk	0,5	0,9	1,4	0,9	0,5	1,0	1,2	8,0	5,5	6,9
average	0,6	0,7	1,1	1,6	1,0	0,9	1,1	6,9	4,4	4,2

<sup>\*</sup> Total inward leakage values in %

		Half mask with valve								
Exercise				Te	st subje	ct refere	nce			
	11	12	13	14	15	16	17	18	19	20
Walk	0,4	1,4	0,4	0,3	0,7	0,2	8,1	0,9	2,8	0,1
Left-Right	0,6	1,5	1,8	0,1	1,5	0,4	9,1	2,6	4,9	0,2
Up-Down	0,4	1,6	2,3	0,2	2,8	0,5	12,6	2,3	7,4	0,7
Alphabet	0,2	1,5	4,4	0,2	4,0	0,5	9,4	3,3	5,0	0,5
Walk	0,2	0,2 3,3 2,7 0,2 2,4 0,4 13,0 2,6 6,9 0,3								
average	0,4	1,9	2,3	0,2	2,3	0,4	10,4	2,3	5,4	0,4

<sup>\*</sup> Total inward leakage values in %



Article of the				Co	nform	ity*	
standard EN 149+A1		Content		Yes	No	N-A	Comments
Art 7.9.2	mask shall meet th	Iter material  f the filter of the page requirements of Tage  — Penetration of filter  — Maximum penetrat  Sodium chloride test 95 l/min % max. 20 6 1	able1. er material	<b>√</b>			Date of test: 07/01/2021  All tests were carried out on half mask with exhalation valve

<sup>\*</sup> The measurement uncertainties are not taken into account for the assessment of conformity.

#### Paraffin oil penetration of filter material tests results (%)

Conditioning		AR			SWT	
Penetration (3min)	0,59	0,67	0,74	0,88	0,89	0,84

Conditioning		MS+TC	
Exposure (120mg)	3,19	3,87	3,22

#### Sodium chloride penetration of filter material tests results (%)

Conditioning		AR			SWT	
Penetration (3min)	0,21	0,36	0,21	0,28	0,41	0,40

Conditioning		MS+TC	
Exposure (120mg)	0,37	0,43	0,21

As Received (AR), Simulated Wearing Treatment (SWT), Mechanical Strength (MS), Temperature Conditioning (TC)



Standard EN   149+A1   Art 7.10   Compatibility with skin   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.    Art 7.11   Flammability   The material used shall not present a danger for the wearer and shall not be of highly flammable nature.   Date of test: 07/01/2021   The material used shall not burn for more than 5 s after removal from the flame.   The particle filtering half mask shall not burn or not to continue to burn for more than 5 s after removal from the flame.   The carbon dioxide content of the inhalation air   The carbon dioxide content of the inhalation air   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   The carbon dioxide content of the inhalation air   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   The carbon dioxide content of the inhalation air   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after removal from the flame   Date of test: 05/01/2021   The mask doesn't burn after rem	Article of the		Co	nform	ity*	
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.  Art 7.11  Flammability The material used shall not present a danger for the wearer and shall not be of highly flammable nature. When tested, the particle filtering half mask shall not burn or not to continue to burn for more than 5 s after removal from the flame. The particle filtering half mask does not have to be usable after the test.  Art 7.12  Carbon dioxide content of the inhalation air The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1,0 % (by volume)  Art 7.13  Head harness The head harness shall be designed so that the particle filtering half mask firmly in position and be capable of maintaining total inward leakage requirements for the device.  Art 7.14  Field of vision The field of vision is acceptable if determined so in practical performance tests  Art 7.15  Exhalation valve(s), which shall function correctly in all orientations 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.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min	standard EN	Content	Yes	No	N-A	Comments
skin shall not be known to be likely to cause irritation or any other adverse effect to health.  Art 7.11  Flammability  The material used shall not present a danger for the wearer and shall not be of highly flammable nature. When tested, the particle filtering half mask shall not burn or not to continue to burn for more than 5 s after removal from the flame.  The particle filtering half mask does not have to be usable after the test.  Art 7.12  Carbon dioxide content of the inhalation air The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1,0 % (by volume)  Art 7.13  Head harness The head harness shall be designed so that the particle filtering half mask can be donned and removed easily. 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 be capable of maintaining total inward leakage requirements for the device.  Art 7.14  Field of vision The field of vision is acceptable if determined so in practical performance tests  Art 7.15  Exhalation valve(s) A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations  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.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min	Art 7.10	Compatibility with skin	✓			Manufacturer statement
The material used shall not present a danger for the wearer and shall not be of highly flammable nature.  When tested, the particle filtering half mask shall not burn or not to continue to burn for more than 5 s after removal from the flame.  The particle filtering half mask does not have to be usable after the test.  Art 7.12  Carbon dioxide content of the inhalation air  The carbon dioxide content of the inhalation air  The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1,0 % (by volume)  Art 7.13  Head harness  The head harness shall be designed so that the particle filtering half mask can be donned and removed easily.  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 be capable of maintaining total inward leakage requirements for the device.  Art 7.14  Field of vision  The field of vision is acceptable if determined so in practical performance tests  Art 7.15  Exhalation valve(s), which shall function correctly in all orientations  If an exhalation valve is provided it shall be protected against or be resistant to dirt and mechanical damage and may be shouded or may include any other device that may be necessary for the particle filtering half mask to comply with 7.9.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min		skin shall not be known to be likely to cause irritation or				
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The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1,0 % (by volume)  Art 7.13  Head harness The head harness shall be designed so that the particle filtering half mask can be donned and removed easily. 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 be capable of maintaining total inward leakage requirements for the device.  Art 7.14  Field of vision The field of vision is acceptable if determined so in practical performance tests  Art 7.15  Exhalation valve(s) A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations  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.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min	Art 7.12	Carbon dioxide content of the inhalation air	✓			Date of test:
The head harness shall be designed so that the particle filtering half mask can be donned and removed easily. 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 be capable of maintaining total inward leakage requirements for the device.  Art 7.14 Field of vision  The field of vision is acceptable if determined so in practical performance tests  Art 7.15 Exhalation valve(s)  A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations  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.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min	7.11.7.12	The carbon dioxide content of the inhalation air (dead				05/01/2021 CO <sub>2</sub> (%) Without valve 0,62 0,64 With valve
The head harness shall be designed so that the particle filtering half mask can be donned and removed easily. 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 be capable of maintaining total inward leakage requirements for the device.  Art 7.14 Field of vision  The field of vision is acceptable if determined so in practical performance tests  Art 7.15 Exhalation valve(s)  A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations  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.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min	Art 7.13	Head harness	✓			Self-Adjusting ear loops
The field of vision is acceptable if determined so in practical performance tests  Art 7.15 Exhalation valve(s)  A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations  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.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min  Ref SA 1510  Ref SA 1510		The head harness shall be designed so that the particle filtering half mask can be donned and removed easily. 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 be capable of maintaining total				, , ,
Art 7.15 Exhalation valve(s)  A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations  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.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min  Ref SA 1510  Ref SA 1510	Art 7.14	Field of vision	✓			See Art 7.7
A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations  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.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min						
exhalation valve(s), which shall function correctly in all orientations  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.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min	Art 7.15	Exhalation valve(s)	✓			Ref SA 1510
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.  Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min  Date of test: 06/01/2021		exhalation valve(s), which shall function correctly in all				
correctly after a continuous exhalation flow of 300 l/min 06/01/2021		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	<b>√</b>			
			✓			
When the exhalation valve housing is attached to the face blank, it shall withstand axially a tensile force of 10 N applied for 10s.		blank, it shall withstand axially a tensile force of 10 N	✓			

<sup>\*</sup> The measurement uncertainties are not taken into account for the assessment of conformity.



Article of the					Co	nform	ity*	
standard EN 149+A1		Cont		Yes	No	N-A	Comments	
Art 7.16	Breathing resi	stance						Date of test:
	The breathing reparticle filtering hof Table 2.						04/01/2021	
	Tab	oleau 2 – Brea	thing resistand	e				
	01 '' ''	Maxim	um permitted re (mbar)	esistance				
	Classification	inha	lation	exhalation				
		30 l/min	95 I/min	160 l/min				
	FFP1	0.6	2.1	3.0				
	FFP2	0.7	2.4	3.0	✓			
	FFP3	1	3	3.0				

<sup>\*</sup> The measurement uncertainties are not taken into account for the assessment of conformity.

#### Breathing resistance tests results

Conditioning		А	R		SWT				
Half mask	Without valve	Without valve	With valve	With valve	Without valve	Without valve	With valve	With valve	
at 30l/min	0,31	0,30	0,33	0,32	0,30	0,32	0,34	0,34	
at 95l/min	1,06	1,06	1,13	1,13	1,08	1,10	1,18	1,17	
at 160l/min	1,53	1,51	1,61	1,50	1,62	1,58	1,64	1,58	

Values in mbar

Conditioning		Т	С		3001/1	g 30s	
Half mask	Without valve	Without valve	With valve	With valve	With valve	With valve	With valve
at 30l/min	0,30	0,34	0,33	0,32	0,31	0,33	0,36
at 95l/min	0,99	1,25	1,18	1,11	1,18	1,20	1,20
at 160l/min	1,47	1,65	1,57	1,55	1,68	1,64	1,66

Values in mbar



Article of		Co	nform	ity*	
the standard EN 149+A1	Content	Yes	No	N-A	Comments
Art 7.17	Clogging			<b>√</b>	
Art 7.17.1	General  For single shift use devices, the clogging test is an optional test. For re-usable devices the test is mandatory.  Devices designed to be resistant to clogging, shown by a slow increase of breathing resistance when loaded with dust, shall be subjected to the treatment described in 8.10.  The specified breathing resistance shall not be exceeded				
Art 7.17.2	before the required dust load of 833 mg.h/m3 is reached  Breathing resistance				
Art 7.17.2.1	Valved particle filtering half masks				
, <u>=</u>	After clogging the inhalation resistances shall not exceed:  — FFP1: 4 mbar;  — FFP2: 5 mbar;  — FFP3: 7 mbar;  at 95 l/min continuous flow  The exhalation resistance shall not exceed 3 mbar at 160 l/min continuous flow				
Art 7.17.2.2	Valveless particle filtering half masks				
	After clogging the inhalation and exhalation resistances shall not exceed:  — FFP1: 3 mbar  — FFP2: 4 mbar  — FFP3: 5 mbar; at 95 l/min continuous flow				
Art 7.17.3	Filter penetration				
	All types (valved and valveless) of particle filtering half masks claimed to meet the clogging requirement shall also meet the requirements given in 7.9.2, for the Penetration test according to EN 13274-7, after the clogging treatment.				
Art 7.18	Demountable parts			✓	
	All demountable parts (if fitted) shall be readily connected and secured, where possible by hand.				

<sup>\*</sup> The measurement uncertainties are not taken into account for the assessment of conformity.



Article of		Co	nform	ity	
the standard EN 149+A1	Content	Yes	No	N-A	Comments
Art. 9	Marking				
Art 9.1	Packaging	✓			
	The following information shall be clearly and durably marked on the smallest commercially available packaging or legible through it if the packaging is transparent				
Art 9.1.1	The name, trademark or other means of identification of the manufacturer or supplier	✓			
Art 9.1.2	Type-identifying marking	✓			
Art 9.1.3	Classification				
	The appropriate class (FFP1, FFP2 or FFP3) followed by a single space and then:	✓			
	"NR" if the particle filtering half mask is limited to single shift use only. Example: FFP3 NR,	✓			
	or "R" if the particle filtering half mask is re-usable. Example: FFP2 R D.			<b>✓</b>	
Art 9.1.4	The number and year of publication of this European Standard	✓			
Art 9.1.5	At least the year of end of shelf life. The end of shelf life may be informed by a pictogram as shown in Figure 12a, where yyyy/mm indicates the year and month.	<b>✓</b>			
Art 9.1.6	The sentence "see information supplied by the manufacturer", at least in the official language(s) of the country of destination, or by using the equivalent pictogram.	✓			
Art 9.1.7	The manufacturer's recommended conditions of storage (at least the temperature and humidity) or equivalent pictogram	✓			
Art 9.1.8	The packaging of those particle filtering half masks passing the dolomite clogging test shall be additionally marked with the letter "D". This letter shall follow the classification marking preceded by a single space.			<b>✓</b>	



Article of		Co	nform	ity	
the standard EN 149+A1	Content	Yes	No	N-A	Comments
Art. 9	Marking (continuation)				
Art 9.2	Particle filtering half mask				
	Particle filtering half masks complying with this European Standard shall be clearly and durably marked with the following:				
Art 9.2.1	The name, trademark or other means of identification of the manufacturer or supplier	✓			
Art 9.2.2	Type-identifying marking	✓			
Art 9.2.3	The number and year of publication of this European Standard	✓			
Art 9.2.4	Classification				
	The appropriate class (FFP1, FFP2 or FFP3) followed by a single space and then:	<b>✓</b>			
	"NR" if the particle filtering half mask is limited to single shift use only. Example: FFP3 NR,				
	or			<b>✓</b>	
	"R" if the particle filtering half mask is re-usable. Example: FFP2 R D."				
Art 9.2.5	If appropriate the letter D (dolomite) in accordance with clogging performance. This letter shall follow the classification marking preceded by a single space (see 9.2.4).			<b>✓</b>	
Art 9.2.6	Sub-assemblies and components with considerable bearing on safety shall be marked so that they can be identified			<b>✓</b>	
Regulation	CE Marking (CE + Notified body in charge of module C2 or D);	✓			
	The CE marking shall be affixed visibly, legibly and indelibly to the PPE;	✓			
	For PPE subject to ageing: the month and year of manufacture and/or, if possible, the month and year of obsolescence must be indelibly and unambiguously marked on each item of PPE placed on the market and on its packaging;	<b>√</b>			
	Name and address of the manufacturer;	✓			
	Type, batch or serial number or other means of identification	✓			



Article of		Co	nform	ity	
the standard EN 149+A1	Content	Yes	No	N-A	Comments
	Concerning the instruction for use: Only the English version has been checked. It is the responsibility of the manufacturer to supply the instruction for use in the official languages of the country of destination				
Art. 10	Information to be supplied by the manufacturer				
Art 10.1	Information supplied by the manufacturer shall accompany every smallest commercial available package			<b>✓</b>	
Art 10.2	Information supplied by the manufacturer shall be at least in the official language(s) of the country of destination			<b>✓</b>	
Art 10.3	The information supplied by the manufacturer shall contain all information necessary for trained and qualified persons on:				
	— application/limitations ;	✓			
	— the meaning of any colour coding;			✓	
	— checks prior to use ;	✓			
	— donning, fitting ;	✓			
	— use ;	✓			
	maintenance (e.g. cleaning , disinfecting),if applicable;			✓	
	— storage ;	✓			
	— the meaning of any symbols/pictogram used of the equipment	<b>✓</b>			
Art 10.4	The information shall be clear and comprehensible. If helpful, illustrations, part numbers, marking shall be added.	<b>✓</b>			
Art 10.5	Warning shall be given against problems likely to be encountered, for example:				
	— fit of particle filtering half mask (check prior to use);	✓			
	— it is unlikely that the requirements for leakage will be achieved if facial hair passes under the face seal;	✓			
	— air quality (contaminants, oxygen deficiency);	✓			
	— use of equipment in explosive atmosphere.	✓			
Art 10.6	The information shall provide recommendations as to when the particle filtering half mask shall be discarded.	✓			
Art 10.7	For devices marked "NR", a warning shall be given that the particle filtering half mask shall not be used for more than one shift.	<b>✓</b>			
Regulation	Name and address of the manufacturer;	✓			
	Name, address and identification number of the notified body or bodies involved in the conformity assessment of the PPE (module B and module C2 or D);	<b>√</b>			
	EU declaration of conformity or the internet address where the EU declaration of conformity can be accessed;	✓			
	The risk against which the PPE is designed to protect;	✓			
	The reference to this Regulation	<b>✓</b>			
	The references to the relevant harmonised standard(s) used, including;	•			
	The date of the standard(s), or references to the other technical specifications used;	✓			



#### 10.Conclusion

The PPE category III – Filtering half mask to protect against particles with and without exhalation valve identified in paragraph 4 meets the Essential Health and Safety Requirements of PPE Regulation 2016/425 of 9<sup>th</sup> march 2016.

The assessment of conformity takes into account the compliance of the PPE with the provisions of European standard EN 149 : 2001 + A1 : 2009, and with the conformity of manufacturer's technical documentation.

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