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Community masks -
Basic requirements and test procedures

Community-Masken -
Grundlegende Anforderungen und Prüfverfahren

Community masks -
Exigences de base et méthodes d'essai

The standardization committee Projects/CMA << Community Masks >> of the interdisciplinary sector is in charge of this document.

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Foreword

As COVID-19 became a pandemic, a shortage of facemasks on the global market has been observed. Innovative SMEs started to develop alternative facemasks complementing the well-established medical facemasks - and filtering face piece (FFP) masks. At this time textile masks of different designs, architectures, and quality were flooding the market. Producers, customers as well as regulators were overwhelmed by this situation.

The different performances of community masks have repeatedly been the basis for various discussions and uncertainties. The Swiss Association for Standardization (SNV) has been approached by different stakeholders from industry and science, on the possibility to rapidly develop a normative document that sets minimal requirements for community masks. SNV decided to develop a Swiss Rule (SNR) with all interested stakeholders. A SNR is a normative deliverable with limited consensus. It is developed in an expert group by experts from various fields. The public enquiry of an SNR is optional as well as the announcement of the publication. A SNR is not part of the Swiss set of standards. It is valid for 5 years with an additional 3 years if transformed into a Swiss Standard (SN).

Since SNV wanted to contribute to the combat of COVID-19, participation in the drafting of the SNR was free of charge for all interested parties in Switzerland. The development has been carried out within the SNV project group “CMA Community Masks”, which is not part of the established committee structure.

This document is based on the suggestion and recommendation paper “recommendations on minimal specifications for community masks and their use” published by the Swiss National COVID-19 Science Task Force. The minimal requirements defined in that recommendations have been acknowledged by the Federal Office of Public Health FOPH.

The SNR was adopted by correspondence on 2020-12-22 with unanimity of the experts involved. Therefore, the SNR might not reflect the views of all stakeholders that have an interest in this subject matter.

Users of the SNR should be aware that neither the involved experts, nor the SNV can be held liable for damages or losses of any kind whatsoever which may arise from its application.

This document (SNR 30000:2021) has been prepared by various experts, including members of the Swiss National Covid-19 Science Task Force, research institutes, testing institutes, mask manufacturers and occupational safety experts.

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Introduction

Community masks are intended to prevent the spread of virus-containing droplets of pre- and asymptomatic individuals, especially in enclosed spaces and when social distancing rules cannot be observed, for example on public transportation.

Community Masks are not intended to protect the user from potential virus-containing particles from others but are intended to reduce the spread of viruses caused by coughing, sneezing, speaking or breathing by the wearer (source control). Users of community masks protect each other by wearing one mask each.

This document includes basic requirements for splash/droplet resistance, aerosol filtration efficiency, breathability and reusability.

It is important that community masks are easy to use and comfortable to wear for a broad population. Since comfort is very personal, and therefore difficult to quantify only basic design requirements are given. The aim is that manufacturers design a mask in such a way that high user acceptance is reached (performance based approach).

Masks intended for user protection are personal protective equipment and regulated by law.

The community masks specified in this document do not fall under the Medical Devices Ordinance (MedDO) nor the Personal Protective Equipment Ordinance (PPEO).

Community masks are not subject to a mandatory conformity assessment by notified bodies or laboratories.

Community masks, as defined in this document, are fabric masks that fulfil certain performance requirements. The English term community mask is used in all translations of this SNR. Terms used for community masks in other languages are: “Mund-Nasen-Schutz” in German, "masques industriel en tissue" in French, "mascherine di comunità" in Italian.

An overview of the different type of masks is given in Annex A.

1 Scope

This document specifies requirements for design, performance, test methods and reusability of community masks.

Community masks, aimed at source control, can be effective in the retention of particles of different sizes produced during speaking, coughing or sneezing.

The document gives guidance on user information.

This SNR is not applicable to medical face masks - nor filtering half masks for personal protection.

NOTE 1 Standards for masks for use as respiratory personal protective equipment are available.

NOTE 2 Standards for masks for use in medical settings are available.

NOTE 3 Community masks are typically but not exclusively made from textiles.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

SN EN 149+A1:2009, *Respiratory protective devices — Filtering half masks to protect against particles - Requirements, testing, marking*[a]

SN EN ISO 6330:2012, *Textiles — Domestic washing and drying procedures for textile texting (ISO 6330:2012)*[b]

SN EN ISO 13688:2013, *Protective clothing — General requirements (ISO 13688:2013)*[c]

SN EN 14683+AC:2020, *Medical face masks — Requirements and test methods* [d]

SN EN ISO 16972:2020, *Respiratory protective devices — Vocabulary and graphical symbols (ISO 16972:2020)*[e]

ISO 18184:2019, *Textiles — Determination of antiviral activity of textile products*

ISO 22609:2004, *Clothing for protection against infectious agents — Medical face masks — Test method for resistance against penetration by synthetic blood (fixed volume, horizontally projected)*

[a] National adoption of EN 149:2001+A1:2009, *Respiratory protective devices — Filtering half masks to protect against particles -Requirements, testing, marking*

[b] National adoption of EN ISO 6330:2012, *Textiles— Domestic washing and drying procedures for textile texting (ISO 6330:2012)*

[c] National adoption of EN ISO 13688:2013, *Protective clothing — General requirements (ISO 13688:2013)*

[d] National adoption of EN 14683:2019+AC:2019, *Medical face masks — Requirements and test methods*

[e] National adoption of EN ISO 16972:2020, *Respiratory protective devices — Vocabulary and graphical symbols (ISO 16972:2020)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

– IEC Electropedia: available at http://www.electropedia.org/

– ISO Online browsing platform: available at http://www.iso.org/obp

3.1
respiratory protective device
RPD
personal protective equipment designed to protect the wearer's respiratory tract against the inhalation of hazardous atmospheres

[SOURCE: SN EN ISO 16972:2020, 3.203, modified: internal references removed]

3.2
half mask
tight-fitting respiratory interface covering the mouth, nose and chin

[SOURCE: SN EN ISO 16972:2020, 3.104, modified: references removed]

3.3
filtering facepiece
FFP mask
respiratory protective device (3.1) entirely or substantially constructed of filtering material

Note 1 to entry: Marked "FF" for filtering facepiece.

[SOURCE: SN EN ISO 16972:2020, 3.89, modified: Term FFP mask added and internal references adapted]

3.4
medical face mask
medical device covering the mouth and nose providing a barrier to minimize the direct transmission of infective agents between staff and patient

Note 1 to entry: Transmission of fluid-borne agents from patients to staff may occur via splashes.

Note 2 to entry: Medical face mask in the context of this document comply with SN EN 14683. They do not require third party assessment.

[SOURCE: SN EN 14683+AC:2020, 3.9, modified: Note 2 to entry added]

3.5
community mask
mask destined to protect the greater public from infection by means of source control

Note 1 to entry: Community masks are professionally produced masks.

Note 2 to entry: Community masks are not considered medical face masks or FFP masks and therefore do not need to meet the requirements of SN EN 14683 or SN EN 149.

4 Requirements

4.1 Splash/droplet resistance

4.1.1 Purpose

The test evaluates the retention of droplets by the mask in order to prevent spreading of pathogens by the wearer.

4.1.2 General

The test is based on ISO 22609:2004 and SN EN 14683+AC:2020. The test method in ISO 22609:2004 evaluates the protection of the wearer from exposure to blood and other body fluids. Whereas SN EN 14683+AC:2020, Table 1 gives the pressure of 16,0 kPa to be applied to simulate a punctured blood vessel.

In order to simulate the situation during sneezing (7 kPa [1]) or maximal static expiratory mouth pressure (13 kPa [2]) the pressure for testing is set to 10,6 kPa. In addition, the synthetic blood according to ISO 22609:2004 is exchanged with synthetic saliva and the test is performed on the inside of the mask.

NOTE 10,6 kPa is a standard test pressure given in ISO 22609:2004.

4.1.3 Reagents and materials

Prepare Synthetic saliva according to the procedure below and add red dye according to ISO 22609:2004, Annex B.

NOTE 1 The composition and preparation of the artificial saliva is based on DIN 53160-1:2010 *Determination of the colourfastness of articles for common use - Part 1: Test with artificial saliva*.

Table 1 — Composition of the artificial saliva of pH 6,8 ± 0,1

Reagents	**Mass concentration g/l**
Magnesium chloride ($MgCl_2 \cdot 6H_2O$)	0,17
Calcium chloride ($CaCl_2 \cdot 2H_2O$)	0,15
Dipotassium hydrogen phosphate ($K_2HPO_4 \cdot 3H_2O$)	0,76
Potassium carbonate (K_2CO_3)	0,53
Sodium chloride (NaCl)	0,33
Potassium chloride (KCl)	0,75
1 % (m/m) Hydrochloric acid	to be added until a pH value of 6,8 ± 0,1 is achieved.

Dissolve the potassium and sodium salts in about 900 ml of water. Then add calcium chloride and magnesium chloride and stir until the complete dissolution of all the reagents added. Calibrate the pH meter in accordance with the manufacturer's instructions using buffer solution. Immerse the pH electrode in the solution, stir slightly, and add hydrochloric acid until a stable pH value of 6,8 ± 0,1 is achieved. Transfer the solution to a 1 000 ml one-mark volumetric flask and make up to the mark with water. Protect from light and make sure before use that the pH value of the artificial saliva is in the range of 6,8 ± 0,1.

NOTE 2 If the artificial saliva is to be stable longer than two weeks, it is recommended to use water that has been heated to boiling for ten minutes.

All other reagents and materials shall be according to ISO 22609:2004.

NOTE 3 ISO 22609:2004, 3.9 defines the red shade as amaranth. A suitable dye to achieve this shade is for example Direct red 81[f] (CAS 2610-11-9/12237-71-7).

4.1.4 Apparatus

All test equipment shall be according to ISO 22609:2004.

4.1.5 Preparation of test samples and test pieces

Use the complete mask as the test specimen.

Preconditioning of the masks according to ISO 22609:2004, 6.

4.1.6 Test method

Apply the procedure according to ISO 22609:2004, 7.1, but with the following modifications

- apply 10,6 kPa pressure
- replace the synthetic blood by synthetic saliva
- test from inside to the outside of the mask.

For coloured masks where a possible staining is not visible, a white cosmetic paper tissue or a sheet of household paper is brought into direct contact with the mask during the test procedure. Staining of the white paper is interpreted as passing of the liquid through the community mask and corresponds to a failed test.

4.1.7 Limit value/Threshold value

No liquid penetration in 9 out of 10 specimens.

NOTE According to ISO 22609:2004 an AQL of 4% requires 29 out of 32 specimens to pass.

4.2 Filtration efficiency

4.2.1 Purpose

This test is intended to evaluate the filtration efficiency and thus the effectiveness of the mask with regard to the retention of aerosols in order to prevent spreading of pathogens by the wearer.

4.2.2 General

The filtration efficiency is determined by exposing the mask to a defined particle stream and by calculation of the ratio of the measured particle concentration up- and downstream of the mask.

NOTE 1 Particle concentration C is the quotient of number N of particles and volume V. For more information, see SN EN ISO 80000 9:2020, 9-9.1.

[f] Direct red 81 is an example of a suitable product available commercially. This information is given for the convenience of the user of the SNR and does not constitute an endorsement by SNV of these products.

Two different methods can be used to determine the filtration efficiency for an aerodynamic particle diameter of 1 µm. Test A – Defined particle size (4.2.5.2) involves the generation of particles of a well-defined particle size (i.e. 1 µm) which are passed through the mask. The particle concentration is then measured without differentiating the size of the particles. For Test B – Measurement of particles in a specific range (4.2.5.3) a polydisperse aerosol is drawn through the mask and a measurement of particle size distribution allows calculation of the filtration efficiency at the target particle size of 1 µm.

Either sodium chloride or paraffin oil particles are used for testing. Alternatively, DEHS (Di-Ethyl-Hexyl-Sebacate) particles may also be used.

NOTE 2 Other type of electrically neutral particles may be used if the requirements regarding particle size are met.

4.2.3 Apparatus

The apparatus consists of a particle generator device, a conditioner, a sample holder and a particle counter.

For Test A – Defined particle size (4.2.5.2), a device which produces or select monodisperse aerosols and a particle detector are needed.

For Test B – Measurement of particles in a specific range (4.2.5.3), a particle spectrometer that measures size-segregated particle concentration is employed.

If particles are produced by nebulization of an aqueous solution, the apparatus shall allow the aerosol to be dried to a relative humidity < 40 % before entering the mask.

The sample holder shall fix the mask tightly and have a well defined area between 10 and 80 cm^2.

The apparatus shall allow controlling the volumetric flow through the sample holder.

4.2.4 Preparation of test samples and test pieces

Use the complete face mask as the test specimen.

4.2.5 Test method

4.2.5.1 General

A total of 10 measurements shall be received by either testing 5 masks in two different areas or 10 masks in one area.

NOTE 1 Depending on the size of the sample holder there can be an overlap of the testing areas.

If the mask has a connection area or connection point, a measurement area should include this area.

NOTE 2 Parts can be joined by a seam or gluing or welding.

Masks made of elastic materials shall not be stretched for testing.

Test the mask either according to 4.2.5.2 Test A – Defined particle size or 4.2.5.3 Test B - Measurement of particles in a specific range.

If particles are produced by nebulization of an aqueous solution, the aerosol shall be dried to a relative humidity < 40 % before the particles reach the mask. Care shall be taken to neutralize the aerosol to avoid electrostatic losses in the sampling lines and in the mask.

Calibrate the devices used according to the manufacturer's instruction.

Consider blank values or baseline measurements if necessary.

4.2.5.2 Test A – Defined particle size

Monodisperse particles with diameters between 0,9 and 1,1 µm shall be generated and passed through the mask with a laminar flow with flow speed of 8 cm/s. Filtration efficiency is determined with a particle counter measuring before and after the mask.

NOTE 1 Depending on the measurement area given by the sample holder the resulting flow rate is between 4,8 l/min and 38,4 l/min.

It is recommended to wait 3 minutes for the system to stabilise before starting the measurement. The measurement time should be about 30 seconds.

NOTE 2 The recommendation is based on SN EN 13274-7:2020, 5.3 Penetration test.

4.2.5.3 Test B – Measurement of particles in a specific range

The filtration efficiency shall be determined by exposing the test piece to a broad range of particles with sufficient number of particles with diameters around 1 µm. This polydisperse aerosol is passed through the mask with a laminar flow with flow speed of 8 cm/s. The filtration efficiency is assessed by measuring the particle number size distribution before and after the mask at 1 µm. The uncertainty of the diameter measurement should be < 10 %, i.e. the efficiency is representative for the particle size range between 0,9 µm and 1,1 µm.

NOTE 1 Depending on the measurement area given by the sample holder the resulting flow rate is between 4,8 l/min and 38,4 l/min.

It is recommended to wait 3 minutes for the system to stabilise before starting the measurement. The measurement time should be about 30 seconds.

NOTE 2 The recommendation is based on SN EN 13274-7:2020, 5.3 Penetration test.

4.2.6 Calculation

Calculate the filtration efficiency F in % according to formula (1):

$$F = \left(1 - \frac{C_a}{C_b}\right) \times 100 \quad (1)$$

where

F is the filtration efficiency in %;

C_a is the particle concentration after the mask;

C_b is the particle concentration before the mask.

4.2.7 Limit value / Threshold value

The mean value of 10 measurements shall be $F \geq 70$ % and any single measurement not less than 60 %.

4.3 Breathability

4.3.1 Purpose

This test evaluates the air permeability of masks. Masks should have sufficient air permeability to allow normal breathing and by that provide good comfort.

NOTE A good comfort is considered important in order to achieve acceptance and thus a high compliance by the end users.

4.3.2 General

The breathability is measured by determining the difference of pressure across the mask under specific conditions of air flow, temperature and humidity.

4.3.3 Reagents and materials

According to SN EN 14683+AC:2020

4.3.4 Apparatus

According to SN EN 14683+AC:2020, Annex C.1 and C.2

4.3.5 Preparation of test samples and test pieces

Test specimens are complete masks. Remove extremities and lay the mask flat with all layers incorporated. Each specimen shall be able to provide different circular test areas of 25 mm in diameter each. If one specimen cannot provide 3 test areas of 25 mm diameter each, the number of test areas retrieved should be representative for the entire mask. For thick and rigid masks the test method may not be suitable as a proper seal cannot be maintained in the sample holder. The testing shall be performed with the airflow direction from the inside of the mask to the outside of the mask.

NOTE 1 The sample procedure is based on SN EN 14683+AC:2020, C.3.

NOTE 2 If it is not possible to proper seal the mask to the sample holder other ways of testing should be introduced. This may be achieved by additional sealing/gluing or the use of a test head. The deviation from the SNR is to be given in the test report.

Each test specimen shall be conditioned at (21 ± 5) °C and (85 ± 5) % relative humidity for a minimum of 4 h.

4.3.6 Test method

5 masks shall be tested. Per mask the test is performed in 3 different test areas. The test shall be performed according to SN EN 14683+AC:2020, Annex C.4 and C.5 (as for Typ IIR).

4.3.7 Limit value/Threshold value

The pressure drop of the tested community masks (calculated as $\bar{x}$ - 0,84 σ) shall be < 294 Pa at 0,27 m/s. This is equivalent to a pressure drop of < 60 Pa/cm² for a testing area of 4,9 cm² at a volume flow of 8 l/min as given in SN EN 14683+AC:2020.

NOTE The statistical analysis is made according to the method described in the ISO/IEC GUIDE 98-4:2012. For more information see Annex B.

The maximum coefficient of variation should be smaller or equal to 15 %. This value has been empirically determined by the textile industry.

4.4 Reusability

4.4.1 Purpose

If community masks are intended for repeated use, appropriate measures should be taken to reduce the viral load on the mask. This can be achieved by cleaning the mask or creating an antiviral surface, or a combination of both.

4.4.2 General

The mask is tested for reusability based on the declaration of the manufacturer.

This means that the manufacturer/distributor shall specify the intended cleaning procedure and the minimum number of cleaning cycles to which the mask can be subjected and after which the requirements of this SNR are still met.

Masks without antiviral properties shall be subjected for cleaning to washing cycles at a minimum of 60 °C, with a powdered heavy-duty detergent.

Masks with antiviral properties shall undergo an evaluation according to ISO 18184:2019. The antiviral properties shall be measured before and after the cleaning procedures and cycles defined by the manufacturer. The masks shall achieve before cleaning at least "Excellent effect" and "Good effect" after cleaning as given in ISO 18184:2019, Table F.1.

4.4.3 Reagents and materials

As needed for the defined procedure by the manufacturer.

4.4.4 Test method

The masks shall be cleaned according to the manufacturer's specifications.

For washing SN EN ISO 6330 shall be applied.

The masks shall be tested before and after cleaning for the requirements given in this SNR.

4.4.5 Limit value/Threshold value

After cleaning the requirements as given in this SNR are still met.

4.5 Reporting

In the report at least the following information shall be given:

a) The applied standards, including SNR 30000:2021
b) Deviations to the applied standards and the SNR 30000:2021
c) Designation of the samples measured
d) The type of particle (sodium chloride or paraffin oil) used for testing of aerosol filtration efficiency

5 Mask design

5.1 Materials

Materials used for the Community mask which are in contact with skin shall not be irritative or cause injuries and shall comply with SN EN ISO 13688:2013, 4.2.

5.2 Dimensions and fit

The mask shall be designed to cover nose, mouth and chin and the design should provide close fitting on all sides. Different sizes should be produced to allow appropriate and safe use in different individuals (children/adults, female/male). Anthropometric details can be found in ISO/TS 16976-2:2015. In Figure 1 an example for relevant dimensions can be found.

			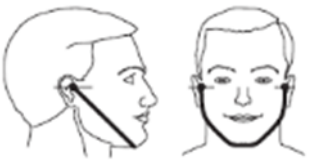
Bigonial breadth *Males* 120 – 140 mm *Females* 110 – 125 mm	**Chin-sellion length** *Males* 123 – 135 mm *Females* 113 – 124 mm	**Interpupillary distance** *Males* 65 – 71 mm *Females* 62 – 68 mm	**Bitragion chin arc** *Males* 330 – 355 mm *Females* 305 – 328 mm

Figure 1 — Example of relevant dimensions for masks according to ISO/TS 16976-2:2015

The design of the mask shall allow easy and hygienic donning and doffing.

The design of the mask shall ensure that the mask remains in place during use including speaking and yawning.

5.3 Wear comfort

Community masks should be wearable all day long. Therefore, the mask design should aim for the highest possible wearing comfort in order to achieve a high user compliance.

6 User information

The manufacturer/distributor should provide user information with the product.

The user information shall give information about cleaning, based on the criteria for reusability in 4.4

- the intended method of cleaning,
- cleaning conditions as minimum temperature and detergent to be used and
- the minimum number of cleaning cycles after which the SNR requirements are still met.

The user information shall also contain a disclaimer that the mask is not considered a medical device or a personal protective equipment.

Annex A
(informative)

Types of masks

Table A.1 gives some information about the different types of masks.

Table A.1 — Types of masks

	Personal protection mask[a]	**Medical face mask**	**Community mask**
Other terms used	filtering face piece (FFP)[b] FFP 1, 2 and 3[b] respirator[b] N95[b] KN95[b]	surgical mask, sanitary mask	textile mask cloth mask barrier mask fabric mask
Primary function	Personal protection Protecting the wearer from harmful substances in the air such as particles, dust and aerosols	Protection of others Reducing the spreading of pathogens by the mask wearer while also protecting the wearer from droplets and other biological fluids	Protection of others Reducing the spreading of pathogens by the mask wearer
Legal requirements	Ordinance on the Safety of Personal Protective Equipment (PPE Ordinance, PPEO, SR 930.115) EU PPE Regulation (Regulation (EU) 2016/425)	Medical Devices Ordinance (MedDO, SR 812.213) EU Medical Device Directive (Directive 93/42/EEC) EU Medical Device Regulation (Regulation (EU) 2017/745)	Federal Act on Foodstuffs and Utility Articles (Foodstuffs Act, FSA, SR 817.0); or Federal Act on Product Safety (Product Safety Act, ProdSA, SR 930.11)
Certification / Marking	Yes, CE-marking with 4-digit identification number from the notified body	Yes, CE-marking without identification number (self declaration)	No CE-marking
Technical requirements	SN EN 149+A1:2009	SN EN 14683+AC:2020	No international, European or Swiss standard. Recommendation of the National Science Taskforce CEN workshop agreement (CWA 17553:2020)
Market surveillance	SECO, subcontracted to SUVA and BFU	Swissmedic	Not defined yet

[a] Protection masks can have a breathing valve.

[b] The terms FFP, N95 and KN95 are not interchangeable as they describe masks defined by different standards. The technical requirements for filtering face pieces (FFP) for personal protection are described in SN EN 149+A1:2009.

Annex B
(normative)

Statistical evaluation

The calculation of characteristic values for breathability is done according to Formulae 2 to 4:

$$\bar{x} = \frac{1}{n}\sum_{1}^{15} x_n \tag{2}$$

$$\sigma = \sqrt{\frac{\sum\left(x - \bar{x}\right)^2}{n}} \tag{3}$$

$$CV = \frac{\sigma}{\bar{x}} \tag{4}$$

where

$\bar{x}$ is the mean value;

x is the measurement value;

σ is the standard deviation;

n is the number of measurement values;

CV is the coefficient of variation

The calculation of probability of conformance is based on ISO/IEC GUIDE 98-4:2012.

The probability of conformance is calculated according to Formula 5.

$$P_c = 1 - \Phi\left(\frac{T_U - \bar{x}}{\sigma}\right) = 0,95 \tag{5}$$

where

T_U is the upper tolerance limit (90 Pa/cm²);

$\bar{x}$ is the mean value;

σ is the standard deviation;

P_C is the conformance probability.

The term $\left(\frac{T_U - \bar{x}}{\sigma}\right)$ shall not exceed 2,039 in order to fulfil the probability of conformity of 95 %.

Annex C
(informative)

Participating experts

Table C.1 lists the experts involved in the development process of the SNR 30000:2021 who have agreed to be mentioned by name.

Table C.1 — List of involved experts

Name	Company
Mr Peter BECKER	Cilander AG
Mr Damien DE COURTEN	Indema AG/Swiss National COVID-19 Science Task Force
Mr Emmanuel DUBOSSON	Nexera Care
Mr Ueli FISCH	wederundgut AG
Mr Emanuel FORSTER	Forster Rohner AG
Ms Caroline FORSTER	Inter-Spitzen AG
Mr Antonio GATTI	Schoeller Textil AG
Mr Thomas GUDE	SQTS - Swiss Quality Testing Services
Mr Jean-Pierre HAUG	Testex AG
Mr Sven HOFFMANN	University of Zurich
Mr Thomas HOFMANN	ZHAW Life Sciences und Facility Management
Ms Nathalie MORAVETZ	SQTS - Swiss Quality Testing Services
Mr Elvis MORSCHER	Cilander AG
Mr Renzo RASO	HeiQ Materials AG
Mr Michael RIEDIKER	Swiss Centre for Occupational and Environmental Health GmbH
Mr René ROSSI	EMPA/Swiss National COVID-19 Science Task Force
Mr Rainer RÖSCH	Schoeller Textil AG
Mr Lukas WEIMANN	WS4sports AG
Mr Ernest WEINGARTNER	University of Applied Sciences and Arts Northwestern Switzerland FHNW
Mr Peter WICK	EMPA/Swiss National COVID-19 Science Task Force
Mr Herbert WIDMER	NUTS Innovations AG
Mr. René WIEDERKEHR	PiViPS GmbH

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[3] SN EN 13274-7:2020, *Respiratory protective devices – Methods of test – Part 7: Determination of particle filter penetration*

[4] SN EN ISO 80000-9:2020, *Quantities and units – Part 9: Physical chemistry and molecular physics*

[5] ISO/IEC Guide 98-4:2012, *Uncertainty of measurement – Part 4: Role of measurement uncertainty in conformity assessment*