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TEST REPORT:

EN 352-2:2020+A1:2024 Hearing protectors - General requirements - Part 2: Earplugs

Product: Earplugs
Report No: 2025 (H) - 096
Client: SGS
Model (s): SAP No. 699191 (Silicone Replacement Tips)
Date of sample receive: 2025.11.06
Date(s) of tests: 2025.11.07 - 2025.11.20

DESCRIPTION OF SAMPLES

	Model	Description
General Information	SAP No. 699191 (Silicone Replacement Tips)	Earplugs
Manufacturer	Ningbo Tour Max Outdoor Products Co., Ltd.	
Manufacturer Address	No.10, 11<6-26>, <6-27>, Lane 8, Yinzhou District, Ningbo, Zhejiang Province, China P. C. 315000	
Numbers of Samples	18 sets (Tips:S 18, M 18, L 18, XL 18)	

Signed:

陈倬为 Chen Zhuowei

Authorized Signatory, Lab Director

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Test Results

4 Requirements

4.1 Sizing and adjustability

4.1.1 Aural earplugs

/1

The nominal diameter or, if appropriate, the range of nominal diameters of the earplugs, shall be tested in accordance with EN 13819-1:2020, 5.2 and reported.

Custom moulded and semi-aural earplugs shall not be subjected to this test.

Note1. Refer to Annex A Table 4.1.1 for testing results.

4.1.2 Banded earplugs

N/A

Adjustability shall be tested in accordance with EN 13819-1:2020, 5.3 and the following requirements satisfied, as appropriate.

In the case of earplugs incorporating a means to adjust the headband force, these requirements shall be satisfied at both the maximum and the minimum force setting.

a) Over-the-head headband earplugs

For each of the combinations of test dimensions shown in EN 13819-1:2020, Table 6, the range of fitting of the headband shall enable the earplugs to be fitted to the fixture.

b) Behind-the-head and under-the-chin headband earplugs

For each of the combinations of test dimensions shown in EN 13819-1:2020, Table 7, the range of fitting of the headband shall enable the earplugs to be fitted to the fixture.

4.2 Materials and construction

4.2.1 Materials

/2

Those materials used in parts of earplugs coming into contact with the user's skin shall comply with the following requirements:

a) The materials shall not be likely to cause skin irritation, skin disorders, allergic reactions or have any other adverse effects to health within the lifetime of the use of the earplugs.

b) When subject to contact with sweat, ear wax or with other materials likely to be found in the ear canal, the materials shall not be known to undergo changes within the lifetime of the use of the earplugs that would result in significant alteration to those properties of the earplugs that are required to be assessed when the earplugs are examined for compliance with 4.2 and 4.3.

Note2. No adverse effects were observed during testing. The lab can not testify the safety of the materials, manufacturer to verify.

4.2.2 Construction

Pass³

All parts of earplugs shall be designed and manufactured such that they are not liable to cause physical damage to the user when fitted and used according to the user information.

Any part of the earplugs that is likely to protrude outside the ear canal when fitted in accordance with the user information shall be of such a construction that mechanical contact with the earplugs is unlikely to cause any injury to the ear.

When inserted in accordance with the user information, earplugs shall be capable of being readily and completely removed from the ear canal by the user, without the use of tools or instruments, when tested using a test panel of 16 subjects.

When earplugs are marked re-usable, re-closable packaging, suitable to ensure hygienic storage between use, shall be supplied with each pair of earplugs.

For custom moulded earplugs, impression of the concha and outer ear canal of test subjects shall be created by competent personnel only and with a defined protocol.

Note3. The laboratory deems that the samples satisfy the requirements in this clause based on the examination results of the samples. The earplugs are not custom moulded earplugs. Test samples were supplied without packaging.

4.3 Performance

4.3.2 Resistance to damage when dropped

/4

The earplugs shall remain intact and fully functional as a passive hearing protection when tested in accordance with EN 13819-1:2020, 5.4. Neither shall any part of the earplugs become detached, such that correct re-assembly requires the use of either a tool or a replacement part.

NOTE Products made from non-brittle materials and not containing electronic functionality can be excluded from this requirement.

Note4. Products made from non-brittle materials and not containing electronic functionality.

4.3.3 Resistance to damage when dropped at low temperature (optional)

N/A

The earplugs shall remain intact and fully functional as a passive hearing protection when tested in accordance with EN 13819-1:2020, 5.5. Neither shall any part of the earplugs become detached, such that correct re-assembly requires the use of either a tool or a replacement part.

4.3.4 Cleaning

N/A

If earplugs are marked re-usable, after the earplugs have been cleaned once, in accordance with the user information, there shall be:

- a) no significant alteration to those initial properties of the earplugs that are required to be assessed when the earplugs are examined for compliance with 4.1 and 4.2; and
- b) no changes observed that can cause any significant alteration to the attenuation characteristics stated in accordance with EN 13819-2:2020, 4.2.

4.3.5 Ignitability

Pass⁵

When tested in accordance with EN 13819-1:2020, 5.6, no part of the earplugs shall ignite upon application of the heated rod nor continue to glow after the removal of the heated rod.

Note5. Refer to Annex A Table 4.3.5 for test results.

4.3.6 Minimum sound attenuation

Pass⁶

When tested in accordance with EN 13819-2:2020, 4.2, the H-, M- and L-values (calculated according to EN ISO 4869-2 for $\alpha = 1$) of the earmuffs shall be not less than the values given in Table 1.

H	M	L
12	11	9

In addition, the APV_{f98} octave band values (calculated according to EN ISO 4869-2:2018 for $\alpha = 2$) shall be equal to or greater than 0, rounded to the nearest integer value for all test frequencies from 125 Hz to 8 000 Hz.

Note6. Refer to Annex A Table 4.3.6 for test results.

5 Marking

Not tested

6 User information

Not tested

End of Test Results

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Annex A Summarization of Test Data**Table 4.1.1 The range of nominal diameters of the earplugs (mm)**

Sample No.	Smallest diameter	Largest diameter
17#S	8	10
18#S	8	10
17#M	9	11
18#M	9	11
17#L	10	12
18#L	10	12
17#XL	11	13
18#XL	11	13

Table 4.3.5 Ignitability

Sample No.		Test Results	Assessment
17#	S	No part of the earplugs was ignited upon application of the heated rod nor continued to glow after removal of the heated rod.	Pass
	M	No part of the earplugs was ignited upon application of the heated rod nor continued to glow after removal of the heated rod.	
	L	No part of the earplugs was ignited upon application of the heated rod nor continued to glow after removal of the heated rod.	
	XL	No part of the earplugs was ignited upon application of the heated rod nor continued to glow after removal of the heated rod.	
18#	S	No part of the earplugs was ignited upon application of the heated rod nor continued to glow after removal of the heated rod.	Pass
	M	No part of the earplugs was ignited upon application of the heated rod nor continued to glow after removal of the heated rod.	
	L	No part of the earplugs was ignited upon application of the heated rod nor continued to glow after removal of the heated rod.	
	XL	No part of the earplugs was ignited upon application of the heated rod nor continued to glow after removal of the heated rod.	

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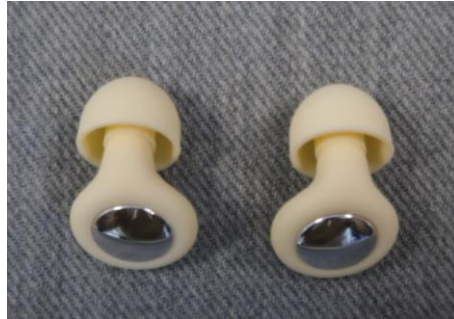
Table 4.3.6 Minimum sound attenuation (dB)

Subject No.	125	250	500	1000	2000	4000	8000
1#	19.6	21.4	18.3	21.2	30.5	25.5	23.7
2#	21.5	17.6	19.1	19.6	25.2	32.5	24.5
3#	25.1	24.4	19.5	21.4	31.5	24.8	21.7
4#	19.8	20.1	25.8	23.7	34.2	26.1	25.3
5#	23.2	19.8	24.6	26.7	30.9	32.4	24.8
6#	27.7	25.7	25.4	27.2	30.0	26.7	29.3
7#	22.1	23.1	25.9	26.6	23.5	24.0	29.1
8#	24.0	22.2	27.6	23.7	22.5	21.5	29.8
9#	20.1	19.0	20.6	22.5	25.8	29.7	25.2
10#	17.8	19.1	22.2	20.7	31.5	27.8	23.6
11#	26.8	19.4	21.2	20.9	28.6	23.7	24.5
12#	20.8	21.6	18.8	23.0	34.4	26.4	26.1
13#	27.4	24.6	26.9	25.2	32.4	30.5	28.4
14#	23.4	20.2	18.7	19.2	27.1	22.3	21.2
15#	22.6	18.3	16.5	19.5	28.2	26.9	24.6
16#	20.0	17.3	23.8	27.0	33.6	29.2	27.4
Mean value	22.6	20.9	22.2	23.0	29.4	26.9	25.6
Standard deviation	3.0	2.6	3.5	2.8	3.7	3.3	2.6
APV	19.6	18.3	18.7	20.2	25.7	23.6	23.0
APVf98	16.6	15.7	15.2	17.4	22.0	20.3	20.4
H_m	26.3	H_s	2.3	H	24	SNR_m	25.5
M_m	23.5	M_s	2.4	M	21	SNR_s	2.0
L_m	22.1	L_s	2.2	L	20	SNR	24
Assessment				Pass			

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End of Annex A

Annex B Photos of sample



End of Annex B

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