

## GB/T 38880-2020 *Technical Specifications of Children Mask* Effective as of May 6<sup>th</sup>, 2020 for China Market

China has standards stipulating the requirements of particulate filtration masks (PPE) and medical masks (medical devices). GB 2626-2006 (2019 version would be effective Jul 2020) and GB/T 32610-2016 are the two standards defining the requirements of particulate filtration masks. However, GB 2626 is more applicable to industrial masks with face pieces, while GB/T 32610 is not applicable to children masks. Due to the coronavirus outbreak, numerous associate standards (China standards with prefix "T/") have been published in very short time to address the urgent need of equipment for better protection, but adopting these associate standards need the approval or acknowledgement of the professional or trade associations which publish the standards. In view of the urgent need of addressing children masks requirement in China, GB/T 38880-2020 was published on May 6<sup>th</sup>, 2020 and being effective immediately. This is a China industrial standard defining the requirements of children masks that can help to filter airborne microbial and pollens. **Below is a summary and comparison of GB/T 32610-2016 and GB/T 38880-2020.**

Sections	GB/T 32610-2016				GB/T 38880-2020	
Scope	This standard is primarily applicable to masks for daily use under air pollution for particulate filtration. This standard is not applicable to anaerobic condition, under water operation, emergency and fire escapes, medical use, or industrial dust proof conditions that call for specialized breathing protective equipment. <b>This standard is also not applicable to infants and children use masks.</b>				This standard is applicable to masks for children of <b>age 6 up to age 14</b> , for the purpose of filtering particulates in air, and blocking microbes, pollens, airborne droplets, etc. This standard is not applicable to masks with electrically powered air supply.	
Classification	<b>Class A:</b> for very heavy air pollution	<b>Class B:</b> for very heavy or below air pollution	<b>Class C:</b> for heavy or below air pollution	<b>Class D:</b> for moderate or below air pollution	<b>Class F:</b> for protective purpose	<b>Class W:</b> for hygienic purpose
Raw materials and basic construction requirements	Shall securely cover mouth and nose.				Shall securely cover mouth, nose and lower chin. No peculiar odor and not blocking normal visibility.	
	Raw materials shall not be recovered from used materials, shall not contain substances being toxic, carcinogenic or potentially carcinogenic, or causing skin allergy or poor reaction. Any restrictive substances shall comply with related standards. No peculiar odor.				Raw materials shall not be recovered from used materials, shall not cause skin allergy or poor reaction. Shall not use bleached materials. Any restrictive substances shall comply with related standards. Materials used shall sustain normal use of the masks without being broken or deformed during the usage period.	
	Masks shall not have accessible sharp point and sharp edge, not causing harm to person wearing the mask.				Masks shall not have accessible sharp point and sharp edge.	
	Masks shall be easy to be worn or taken off, and not causing obvious pressurized effect or painful sensation, with little effect on free movement at the head.				Masks shall be easy to be worn or taken off, and not causing obvious pressurized effect or painful sensation, with little effect on free movement at the head. Masks shall not use straps secured by tying, shall use adjustable straps. Masks shall have nose bridge made of pliable material. If the masks are equipped with breathing valve, any internal parts of the valve shall not be detached when the masks are normally used.	
Appearance	The surface of the mask shall not be broken, with oil stains or spots, with deformation or any obvious defects				No exposed metal parts. The surface of the mask shall not be broken, with oil stains or spots, with deformation or any obvious defects. Inner layer of mask that have direct skin contact shall not have printing or being dyed.	
<b>Intrinsic requirements</b>						
<b>Parameters</b>	<b>GB/T 32610-2016</b>				<b>GB/T 38880-2020</b>	
Colorfastness to dry/wet rubbing	$\geq 4$ (only applied to printed/dyed parts)				$\geq 4$ (only applied to printed/dyed parts)	
Formaldehyde content	$\leq 20$ mg/kg				$\leq 20$ mg/kg	
pH	4 - 8.5				4 - 7.5	
Cleavable carcinogenic (azo)dyes	Banned ( $\leq 20$ mg/kg) (only applied to printed/dyed parts)				Banned ( $\leq 20$ mg/kg) (only applied to printed/dyed parts)	
Ethylene oxide (EO) residue	$\leq 10$ ug/g (only applied to EO sterilized masks)				$\leq 2$ ug/g	
Migration of optical brightener	-				Not detected	
Length of nose bridge	-				$\geq 5.5$ cm (only applied to masks with nose bridge)	
Nose bridge flex resistance	-				Shall not be broken (only applied to masks with nose bridge)	

Intrinsic requirements (continued)						
Parameters		GB/T 32610-2016			GB/T 38880-2020	
Mask Classification	Class A:	Class B:	Class C:	Class D:	Class F:	Class W:
Inhalation pressure resistance	≤ 175 Pa				≤ 45 Pa	-
Exhalation pressure resistance	≤ 145 Pa				≤ 45 Pa	-
Differential pressure	-				-	≤ 30 Pa
Tensile strength of straps and attachment strength between strap and mask body	≥ 20 N				≥ 15 N	≥ 10 N
Breathing valve detachment	Shall not be slipped off, broken or deformed (only applied to masks with breathing valve)				Shall not be slipped off, broken or deformed (only applied to masks with breathing valve)	
Mask downside visibility	≥ 60°				-	
Flammability	-				Burning time ≤ 5 s	
Microbial Cleanliness	<i>Coliform</i>	Not detected			Not detected	
	<i>Pseudomonas aeruginosa</i>	Not detected			Not detected	
	<i>Staphylococcus aureus</i>	Not detected			Not detected	
	<i>Hemolytic Streptococcus</i>	Not detected			Not detected	
	Total fungal count	≤ 100 CFU/g			≤ 100 CFU/g	
	Total plate count	≤ 200 CFU/g			≤ 200 CFU/g	
Particulate filtration efficiency (PFE)						
Parameters		GB/T 32610-2016			GB/T 38880-2020	
Mask Classification	Class A:	Class B:	Class C:	Class D:	Class F:	Class W:
Particulate filtration efficiency (PFE)	Type II or above	Type III or above	Type III or above	Type III or above	See below	See below
	Type I	Type II	Type III	Type III		
NaCl particulates	≥ 99%	≥ 95%	≥ 90%	≥ 80%	≥ 95%	≥ 90%
Oily (DOP) particulates	≥ 99%	≥ 95%	≥ 90%	≥ 80%	-	-
Particulate protection effectiveness						
Parameters		GB/T 32610-2016			GB/T 38880-2020	
Mask Classification	Class A:	Class B:	Class C:	Class D:	Class F:	Class W:
Particulate protection effectiveness	≥ 95%	≥ 85%	≥ 75%	≥ 65%	≥ 90% (NaCl particulates only)	-
Bacterial filtration efficiency (BFE)						
Parameters		GB/T 32610-2016			GB/T 38880-2020	
Mask Classification	Class A:	Class B:	Class C:	Class D:	Class F:	Class W:
Bacterial filtration efficiency (BFE)	-	-	-	-	-	≥ 95%
Labeling requirements						
Product labeling	Producer name and address Product name Major materials (inner, outer, filtration layer) Executed standard number Mask protection class Specification (S, M, L) Use instruction (wear instruction, attention matters) Manufacturing date, recommended time (hours) per use, validity period If masks have been sterilized, identify sterilization process				Producer name and address Product name Major materials Executed standard number Mask protection class (Protection (F) or Hygiene (W)) Specification (S, M, L) Use instruction (wear instruction, warnings) Manufacturing date, recommended time (hours) per use, validity period If masks have been sterilized, identify sterilization process	
	Warning	As needed				Children suffer from breathing difficulties are not suggested to wear masks, either following medical advice or wear other suitable breathing protection equipment. Remove any mask packaging and other items not related to the mask readily when wearing the mask. Children shall wear masks under adult supervision, of which paying attention to and educating children the proper way of wearing masks. Children shall not horseplay or perform moderate and above intensity level exercises when wearing masks. Shall not disassembly any breathing valve. If experiencing any breathing discomfort, skin allergy symptoms, shall remove the mask and seek medical attention. Keep mask dry and avoid wetted during use, change as needed. Not suggest to repeat using the mask by washing. Not to exchange used masks with others.

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