Product specific requirements: **130. Glasses**

Version: 3.0
Last update: 12.04.2022

Material	Products
plastic, glas, metal	sunglasses, glasses, kids sunglasses, sport glasses

No	Parameter	Method	Reference	Requirement
	General Requirements			
1	**Workmanship**	In House	-	Product and its components has to meet the requirements on design and quality according to information offered by producer; No particular smell on material Free of sharp edges, mechanical squeezing and shearing points. No damages on material: - Without scratches, dents, cracks, marred or discolored surface - Without major defects - Without components missing, deformed or fractured - Without hardware missing - Without pits or burrs and weld smoothly filed / grounded - Without loose components or loosened fastening where rigidity is required - With proper and uniform adhesion in wooden parts - Without flash and consistent in size, color and form for plastic parts - With finished edges and seams - Even in color & clarity - Evenly aligned in seams and components
2	**Ease of Assembly**	In House	-	Shall provide ease of assembly and shall be accurate with no missing parts. Visual Check / Easily assemble
3	**Functionality**	In House	-	The sample shall function as intended or as claimed in the state of as-received. Visual Check
	Chemical Requirements			
	Metal (for frame)			
4	**Nickel release**	EN 12472:2020	SR 817.023.41	< 0.5 µg/cm²/Week For prolonged and direct contact with the skin; incl. metal frames
5	**Lead**	Lead: In-House Method, AAS- or ICP-Analyses	SR 814.81 (CH)	CH Law: 500 mg/kg SGS recommendation: 100mg/kg NEW from 2018: all accessible parts smaller than 5cm (total L, B, W) which can be put into the mouth by small kids till 36 months.
6	**Cadmium**	Acid digestion / AAS or ICP	SR 814.81 (CH)	100 mg/kg In CH related only for: Jewellery, but will be tested for glasses
	Plastics (for frame & case)			
7	**Phthalates**	ISO 14389	SR 817.023.41	DEHP+DBP+BBP < 0,1% (Total) DINP+DIDP+DNOP < 0,1% (Total) < 36 months obligatory by Law; for adults- recommended
8	**Lead (Pb), total content**	Acid digestion / AAS or ICP	SR 817.023.41/ SR 814.81 (CH)	Paints and varnishes, Plastic: 100 mg/kg Manor: Baby till 36 mth: 40mg/kg;
9	**Cadmium (Cd), total content**	EN 1122 Method B; EN 16711-1	SR 817.023.41	Paints and varnishes & in Plastic: 100 mg/kg Manor Regulation: 40 mg/kg
11	**Polycyclic aromatic hydrocarbons (PAH)**	AfPS GS 2019:01 PAK	SR 817.023.41 EU REACH Annex XVII	Requirement of 0.5 mg/kg each PAH

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No	Parameter	Method	Reference	Requirement
12	**Organic Tin Compounds (expressed as tin)**	Solvent Extraction / GC-MS	SR 817.023.41 SR 814.81 (CH); Annex XVII, REACH	CH Law: DOT< 1000 mg/kg by weight of tin; EU Law (REACH): DBT, DOT, TBT, TPhT< 1000 Manor (Oekotex): TBT, TPhT: 1 mg/kg // DBT, DOT, MBT:2mg/kg
13	**Short Chain Chlorinated Paraffin C10-13 (SCCP)**	ISO 18219 / GC-NCI-MS / GC-ECD	SR 817.023.41; SR 814.81 (CH)	≤ 0.15% (Articles) SCCPs CH limit: < 1000 mg/kg Manor (Oekotex): 100 mg/kg
	Leather (for case)			
16	**AZO**	DIN ISO 17234-1 4-aminoazobenzene DIN ISO 17234	SR 817.023.41	max. 30 mg/kg each
17	**Formaldehyde**	DIN EN ISO 17226-2	BGVO (EU) Oekotex	Leather: 300 mg/kg
	Only if claimed 100% Leather without coating			
18	**Chrome VI (after aging)**	ISO 17075-2:2017	SR 814.81(CH)	< 3 mg/kg
19	**Penta-, Tetrachlor-phenol(PCP/TeCP)**	LFGB § 64 BVL B82.02.8	SR 814.81(CH)	PCP, TeCP: not merely unavoidable impurities: 5 mg/kg Manor (Oekotex): Baby <36 mth: 0.05 mg/kg;
20	**Dimethylfumarat**	(EG) Nr. 1907/2006	SR 814.81 (CH)	0,1 mg/kg
	For synthetic or coated Leather			
21	**SCCP**	ISO 18219 / GC-NCI-MS / GC-ECD	SR 817.023.41; SR 814.81 (CH)	≤ 0.15% (Articles) SCCPs CH limit: < 1000 mg/kg Manor (Oekotex): 100 mg/kg
22	**Lead**	Acid digestion, ICP or AAS analysis	SR 817.023.41 SR 814.81 (CH)	Paints and varnishes: 100 mg/kg
23	**Cadmium**	EN 1122	SR 814.81 (CH)	Paints and varnishes: 100 mg/kg
24	**Phthalatess**	ISO 14389	SR 817.023.41	DEHP+DBP+BBP+DIBP< 0,1%(Total) DINP+DIDP+DNOP<0,1%(Total)
25	**Organic Tin Compounds**	ISO 17353, GC-MS analysis	SR 817.023.41 SR 814.81 (CH)	CH Law: DOT< 1000 mg/kg EU REACH Law: DBT, DOT, TBT, TPhT< 1000 mg/kg Manor (Oekotex): TBT, TPhT: 1 mg/kg // DBT, DOT, MBT: 2 mg/kg
26	**PAHs *(Appendix)**	AfPS GS 2019:01 PAK	SR 817.023.41 EU REACH Annex XVII	Requirement of 0.5 mg/kg each PAH

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No	Parameter	Method	Reference	Requirement
	Textile (for case & wipe) basic requirements			
27	**AZO**	DIN EN 14362-1:2017; 4-aminoazo-benzene DIN EN 14362-3:2017	SR 817.023.41	max. 30 mg/kg each
28	**Formaldehyde**	DIN EN ISO 14184-1	BGVO (EU) Oekotex	Baby till 3: n.d. Adults Textile: 75 mg/kg
29	**Allergenic Disperse Dyes**	DIN 54231	SR 817.023.41	Not detectable (< 5 mg/kg)
30	**Penta-, Tetrachlor-phenol(PCP/TeCP)**	LFGB § 64 BVL B82.02.8	SR 814.81(CH)	PCP, TeCP: not merely unavoidable impurities: 5 mg/kg Manor (Oekotex): Baby <36 mth: 0.05 mg/kg;
	Textile with imprint (for case & wipe), additional requirements			
31	**Lead**	Acid digestion, ICP or AAS analysis	SR 817.023.41 SR 814.81 (CH)	Paints and varnishes: 100 mg/kg;
32	**Cadmium**	EN 1122	SR 814.81 (CH)	Paints and varnishes: 100 mg/kg
33	**Penta-, Tetrachlor-phenol(PCP/TeCP)**	Polyester / polyester-blend / printed fabric: Modified § 64 LFGB BVL B82.02.8 with alkaline digestion	SR 814.81 (CH)	PCP, TeCP: not merely unavoidable impurities: 5 mg/kg Manor (Oekotex): Baby <36 mth: 0.05 mg/kg;
34	**Phthalatess**	ISO 14389	SR 817.023.41	DEHP+DBP+BBP< 0,1%(Total) DINP+DIDP+DNOP<0,1%(Total
35	**SCCP**	ISO 18219 / GC-NCI-MS / GC-ECD	SR 817.023.41; SR 814.81 (CH)	≤ 0.15% (Articles) SCCPs CH limit: < 1000 mg/kg Manor (Oekotex): 100 mg/kg
36	**PAHs *(Appendix)**	AfPS GS 2019:01 PAK	SR 817.023.41 EU REACH Annex XVII	Requirement of 0.5 mg/kg each PAH
37	**Organic Tin Compounds**	ISO 17353, GC-MS analysis	SR 817.023.41 SR 814.81 (CH)	CH Law: DOT< 1000 mg/kg EU: DBT, DOT, TBT, TPhT< 1000 mg/kg Manor (Oekotex): TBT, TPhT: 1 mg/kg // DBT, DOT, MBT: 2 mg/kg
	Packaging			
38	**Heavy metals**	Acid digestion, ICP or AAS analysis	SR 814.81 94/62/EG	100 mg/kg (sum) (Pb, Cd, Cr, Hg)

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No	Parameter	Method	Reference	Requirement
	Product Specific Requirements (All items must fulfil EN ISO 12312-1:2013 + A1:2015; DIN EN 14139:2010 (for optical glasses) and the minimum standard requirements listed below)			
	Construction and Material			
39	**Construction**	EN ISO 12312-1 Clause 4.1	-	Sunglass, frame and edges of the filters shall be smooth and without sharp projections.
40	**Filter material and surface quality**	EN ISO 12312-1 Clause 4.2	-	Sunglass filters shall have no material or machining defects within an area of 30 mm diameter around the reference point that might impair vision.
41	**Physiological compatibility**	EN ISO 12312-1 Clause 4.3	-	Design- not compromise the health and safety of the wearer. The risks posed by substances leaking from the device that may come Material- below any regulatory limit. Special attention shall be given to substances which are allergenic, carcinogenic, mutagenic or toxic to reproduction.
	TRANSMITTANCE **Sunglass filters for general use shall be attributed to one of five filter categories (Table 1 in the Norm EN ISO 12312)**			
42	**Filter categories**	EN ISO 12312-1 Clause 5.2	-	An overlap of the transmittance values shall be: - < ± 2 % (absolute) between the categories 0 and 3. - No overlap in transmittance values between cat. 3 and 4. For claimed luminous transmittance, the limit deviation shall be: - ± 3 % (absolute) for categories 0 to 3 - ± 30 % (relative) for category 4
43	**Uniformity of luminous transmittance**	EN ISO 12312-1 Clause 5.3.1	-	relative difference in the luminous transmittance value 1. between two points within specific area of the same lens shall be: < 10 % (relative) for categories 0 to 3 < 20 % (relative) for category 4 2. Between right and left lens < 15 % (relative to the lighter filter).
44	**Additional requirements for road use and driving (if claimed)**	EN ISO 12312-1 Clause 5.3.2	-	shall additionally meet the following three requirements: 1. spectral transmittance of filters of > 0,2 τv between 475 nm and 650 nm. 2. The relative visual attenuation quotient Q (categories 0, 1, 2 and 3) > 0,80 for red signal light, > 0,60 for yellow, green and blue signal lights. 3. Sunglass filters with a luminous transmittance of <75 % shall not be used for road use and driving in twilight or at night.
45	**Wide angle scattering**	EN ISO 12312-1 Clause 5.3.3	-	The wide angle scattering of the filters in the condition as supplied by the manufacturer shall not exceed the value of 3 %.
	Additional transmittance requirements for specific filter types			
46	**Gradient filters** (Grauverlauffilter) filter with variable light transmission	EN ISO 12312-1 Clause 5.3.4.3	-	1. shall meet the transmittance requirements within a 10 mm radius circle, around the reference point. 2. The filter category shall be used to define whether the filters are suitable for road use and driving according to 5.3.2.
	Claimed transmittance properties			
47	**UV absorption/ transmittance (if claimed)**	EN ISO 12312-1 Clause 5.3.5.2	-	The absorption/ transmittance of UV/ UVB/ UVA, shall not exceed the recommended limit (Table 1 to the Norm).
48	**Antireflective coated sunglasses (if claimed)**	EN ISO 12312-1 Clause 5.3.5.2	-	If claimed to be antireflective coated, the luminous reflectance ρv filter as measured from the eye-side of the filter shall be<2,5 %

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No	Parameter	Method	Reference	Requirement
	Refractive Power			
49	**Spherical and astigmatic power**	EN ISO 12312-1 Clause 6.1	-	The spherical power and astigmatic power shall not exceed the tolerances given in Table 2 **Spherical power**: Mean value of the optical power values (D_1, D_2) in the two principal meridians. (D_1+D_2)/2 dioptres — ± 0,12 **Astigmatic power**: Absolute difference between the optical power values (D_1, D_2) in the two principal meridians. ID_1-D_2I dioptres — ≤ 0,12
50	**Local variations in refractive power**	EN ISO 12312-1 Clause 6.2	-	Local values shall comply with the limit listed in Table 2. The measurement shall be made with a 5 mm aperture within a 20 mm circle centered on the reference point.
51	**Prism imbalance (relative prism error)**	EN ISO 12312-1 Clause 6.3	-	For adults' sunglasses, use the diaphragm LB2 with Xb = (32,0 ± 0,2) mm For children's sunglasses, use the diaphragm LB2 with Xb = (27,0 ± 0,2) mm Alternatively, a diaphragm with a different Xb may be used if specified by the manufacturer. The prismatic power difference shall not exceed values in Table 3. Horizontal: Base out prism dioptres 1,00; Base in prism dioptres 0,25 Vertical: prism dioptres 0,25
	Robustness			
52	**Frame deformation and retention of filters**	EN ISO 12312-1 Clause 7.2	-	Frame fitted with filters shall not: a) fracture or crack at any point; b) be permanently deformed from its original configuration by more than 2 % of the distance, c, between the boxed centres of the sunglass frame, that is the residual deformation x shall not exceed 0,02c (see Figure 18 in ISO 12311:2013); c) neither filter shall be displaced from the frame.
53	**Resistance to solar Radiation**	EN ISO 12312-1 Clause 8	-	the relative change in the luminous transmittance of the filters shall be lsee than or equal In addition, the following shall be met: a) the wide-angle scattering shall not exceed the value of 3 %; b) for photochromic filters, τ0/τ1 shall be ≥ 1,25; c) the UV requirements for the initial τv shall continue to be satisfied; d) all claimed transmittance requirements shall be met. Filter category / Relative change in the luminous transmittance $\Delta\tau_v/\tau_v = (\tau_v' - \tau_v)/\tau_v$ 0 — ±3 % 1 — ±5 % 2 — ±8 % 3 — ±10 % 4 — ±10 % NOTE τ_v' is the luminous transmittance after irradiation.

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No	Parameter	Method	Reference	Requirement
	Protective Requirements			
54	**Coverage Area**	EN ISO 12312-1 Clause 11.1	-	The sunglasses shall cover two ellipses with a horizontal diameter of 40 mm and a vertical diameter of 28 mm, the centers of which are separated by 64 mm and symmetrically placed on either side of the center of the bridge of the frame, i.e. its vertical symmetry axis. For children sunglasses, sunglasses shall cover two ellipses with a horizontal diameter of 34 mm and a vertical diameter of 24 mm, the centers of which are separated by 54 mm and symmetrically placed on either side of the center of the bridge of the frame. A different inter-pupillary distance may be used if specified by the manufacturer.
55	**Temporal protective requirements** (only for filter category 4 or for children)	EN ISO 12312-1 Clause 11.2	-	Very dark special purpose sunglasses (filter category 4) shall provide temporal shielding such that the ultraviolet and visible transmittances of the sunglass filter, frame and side are not greater than their values at the visual point at the following locations (see Figure 1): a) in the line of intersection of the frontal plane (tangent to the apex of the cornea) with the inner surface of the sunglass structure, to elevations of 11 mm above and below the horizontal plane through the reference point; and b) in a vertical line in the inner structure of the sunglass that is 30° back from the frontal plane and relative to the apex of the cornea, and to elevations of 6 mm above and below the horizontal plane through the reference point.
	Physical Requirements			
56	**Frame size**	Standard measure	-	As claimed/ product specification/ as measured (-0%, +5%)
57	**Overall dimension**	Standard measure	-	As actual. Shall comply with any claims (-0%, +5%)
	Performance Requirements			
58	**Impact resistance** (only for children)	With reference to EN 71-1	-	Shall be functional after 5 drops from 850mm height

INSTRUCTION AND LABELING
Sunglasses shall be accompanied either by a copy of the EU declaration of conformity or by the internet address at which the EU declaration of conformity can be accessed.

	Reference	Requirements
59	SR 817.023.41 2001/95/EC	The contents shall be clear, easy to understand and sufficient, regarding the intended usage, assembly, safe operation, maintenance, necessary warnings and other useful instructions, if applicable. The presentation of the product, the labelling, any warnings and instructions for its use and disposal and any other indication or information regarding the product.
60	In House	Claim Verification: Must comply with all claims (including accessories, if any). Visual Check
61	817.02/ 817.023.41 EN ISO 12312-1 Clause 12.	Mandatory Information on Label: a) Identification of model b) Name and contact address of manufacturer, importer or retailer (or registered office of the party that is responsible for placing the materials or articles on the CH market) c) Reference to this part of ISO 12312. d) Type of filter, if photochromic and/or polarizing e) Number of the filter category (in both the faded and darkened states for photochromic filters) marked preferably on the frame or on the filter. f) Filter category (symbol and/or verbal description acc.Table 5.; height of symbols > 5 mm '- in a clearly visible place; - in easily readable and indelible writing; - in at least 1 official language (DE/IT/FR) - Place: on the frame or if technically not possible - on a label / leaflet.

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No	Parameter	Method	Reference	Requirement
62			EN ISO 12312-1 Clause 12.2	Optional Information on Label: a) An explanation of the trademarks that are not universally recognized or foreseen by the users of this part of ISO 12312. b) The position of the reference point when different from the one defined in this part of ISO 12312. c) The country of origin (e.g. “made in …….”). d) The nominal value of luminous transmittance. e) Transmission requirements appl. to this product. f) Polarization efficiency if polarizing filters. g) The base material of filters and frame.
63			SR 817.023.41 EN ISO 12312-1 Clause 12.1	Mandatory Information on Leaflet: Special instructions and precautions on how to use the final product, at least following: - not for direct observation of the sun; (de: „Nicht für den direk¬ten Blick in die Sonne“) - not for protection against artificial light sources, e.g. solaria; - not for use as eye protection against mechanical impact hazards (for products not satisfying the requirements of 7.3 or 7.5); - any other restrictions deemed appropriate to be communicated by the manufacturer; 'Additional Warning if necessary(Clause 12.1): g) When the filter does not meet the necessary requirements for driving and for filter category 4, the following warning: “Not suitable for driving and road use” / de:„Nicht verkehrstauglich“ (symbols and/or in writing) or  ISO 7000-2952A  ISO 7000-2952B h) By luminous transmittance < 75 % and > 8 %, the following warning: “Not suitable for driving in twilight or at night” or “Not suitable for driving at night or under condition of dull light”. The same warning applies to photochromic filters for which the luminous transmittance in the faded conditions is < 75 %. j) If relevant, instructions for care and cleaning if the wrong use of cleaning products might damage the sunglasses and a list of damaging products not suitable for cleaning
64	Description of filter categories and assigned symbols		EN ISO 12312-1 Table 5	Table 5 — Description of filter categories and assigned symbols Filter category / Description / Usage / Symbol 0 — Light tint sunglasses — Very limited reduction of sunglare — IEC 60417-5955 1 — Light tint sunglasses — Limited protection against sunglare — ISO 7000-2948 2 — General purpose sunglasses — Good protection against sunglare — ISO 7000-2949 3 — General purpose sunglasses — High protection against sunglare — ISO 7000-2950 4 — Very dark special purpose sunglasses, very high sunglare reduction — Very high protection against extreme sunglare, e.g. at sea, over snowfields, on high mountains, or in desert — ISO 7000-2951 NOTE The wording and/or the pictograms may be used.