AQC ASSOCIATION POUR L´ASSURANCE QUALITÉ DES FABRICANTS DE BRACELETS CUIR	**DOC nb**	LIS004_08
	Replace	LIS004_07

RESTRICTED SUBSTANCES LIST FOR GLUES

Application date: 01Jul24		Page 1/8
Written by	Quality review (signature/date) 28-Jun-2024	Process owner (signature/date) 28-Jun-2024
Sébastien Bagot / Technical & Quality Manager	David Astier / QA&QC Officer	Sébastien Bagot / Technical & Quality Manager

Change log

Version	Date	Modification
07	12Apr23	Revision – Decision TWG by mail 31Mar23 – action CQI-23-081a ✓ Aromatic Amines – Correction of substance name for CAS 90-04-0 ✓ Aromatic Amines – Add of note for the equivalence of certain aromatic amines with the ones of entry 72 of REACH Annex XVII ✓ Bisphenols – Add of bisphenol testing ✓ Diester – Integration of EDGMA into the list ✓ Flame retardants - add of 3 brominated SVHCs – Suppression of TEPA and TRIS ✓ Metals – Chromium (VI) - add of related substances ✓ Metals – Change of method to EN 16711-1 ✓ Phenols - Precision/add of CAS number for isononylphenol and isononylphenol ethoxylated ✓ SVHC (various) - 3 new entries
08	01Jul24	Revision – Decision TWG by mail 26Jun24 ✓ Regulation table - Add of AGEC regulation ✓ Limits for SVHCs - Add of AGEC regulation ✓ Aromatic amines: - Add of textile method EN 14362 ✓ Bisphenols - Suppression of bisphenols B and AF and indication of ISO 11936 method ✓ Brominated flame retardants – change of limits for OctaBDE and also for other PBDEs ✓ Metals – change of method for Cr(VI), add of a limit for Nickel and suppression of tin ✓ Phenols – Add of Annex XIV as legal limit and add of resorcinol (AGEC) ✓ Phthalates – Add of DIOP (AGEC) ✓ Add of (organo)Stannic compounds ✓ PTBP for bracelets glued with neoprene glue: lower limit from 25 to 20 mg/kg

Associated document (level 1)

Document	Title
MAQ016	Chemical Compliance Process

Associated document (level 2)

Document	Title
PRO005	Management of AQC Quality Control for glues

Associated document (level 3)*

Document	Title
-	-

* Internal documents – not disclosed.

Scope of the document

This document defines the list of restricted dangerous chemical substances and testing requirements in the context of glues for leather bracelet as specified by AQC.

For the definition of the limit present in this Restricted Substances list (RSL), AQC takes into consideration all the current international regulations for dangerous substances available and select the strictest limit. The list of chemicals present in this document has been selected based on a risk-based approach completed by AQC experience and knowledge.

International regulations mentioned in this document are:

Abbreviation	Regulation	Country	Comment
16CFR1303	Ban of lead-containing paint and certain consumer products bearing lead-containing paint	USA	-
AGEC	"anti-waste for a circular economy law" of February 10, 2020	France	SVHC substances in the "*Arrêté du 30 août 2023*"
EU POP	Regulation (EU) 2019/1021 of the European Parliament and of the Council on persistent organic pollutants	European Union	-
GB 20400-2006	Leather and fur—Limit of harmful matter	China	-
JP 112	Law on Control of Household Products Containing Harmful Substances	Japan	-
OChim	Ordinance on Protection against Dangerous Substances and Preparations	Switzerland	-
ORRChim	Ordinance on the Reduction of Risks relating to the Use of Certain Particularly Dangerous Substances, Preparations and Articles	Switzerland	-
Proposition 65	Safe Drinking Water and Toxic Enforcement Act	USA (California)	-
REACH XIV	Regulation (EC) no 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)	European Union	Annex XIV Substances subject to authorization
REACH XVII			Annex XVII Substances subject to restriction
REACH SVHC			Substances of Very High Concern

Specific AQC consideration

In the column for regulation, "AQC" stands for extra-regulatory limit set by AQC in a pro-active way:

- "AQC" alone is applied for substances without known regulation
  For some substances, AQC performs testing without limit (for information) or with a limit concentration

- (AQC) after a regulation indicate that the scope has been enlarged to glues by AQC or that the limit applied by AQC is lower than requested by the more stringent regulation.

Limit for REACH and AGEC SVHCs

Article 33(1) of REACH requires that a supplier of articles containing a SVHC included in the Candidate List for authorization in a concentration above 0.1% (w/w) has to provide relevant safety information to the recipients of these articles (Watch Brands). Upon request of a consumer, Watch Brands have to provide relevant safety information about the SVHC to this consumer (Article 33(2) of REACH).
This requirement is also present in Swiss ordinance OChim, article 71.

In article L451-9-1 of AGEC law, it is requested to inform consumers through a labelling of the product, any presence of dangerous substance (also called SVHCs in this document for practical reasons).
Limit concentration for information of the consumer is 0.1% (w/w).

There is no regulatory requirement to limit SVHCs content in articles to 1'000 mg/kg. Nevertheless, AQC Bracelet manufacturers limit all SVHC listed substances to 1'000 mg/kg in leather bracelet and its components before manufacturing.

AQC limit for Proposition 65

For substances listed in the Proposition 65 California, AQC limits take into account the limit in articles present in the case law of Proposition 65 and more precisely the limits indicated in the reformulation injunctions of settlements and judgements.

AQC considers case law: leather articles and related articles to the watch bracelet but also any other article with a related exposure scenario (skin contact).

For substances without any indication of a limit in articles, AQC performs testing of a risk-based selection of substances potentially used for leather production and keeps available for Watch Brands all the data as a support for labelling decision.

AQC limit for EU POP

AQC limits for substances EU POP regulation are in full accordance with the terms detailed for each substance.

AQC requirements for laboratory testing

- Sample picture

Picture of glue samples received by the laboratory have to be taken **without** plastic bag.

- Sample preparation

Glue samples are packaged in airtight white vials provided by AQC.
Glue samples are shipped unpolymerized if possible, otherwise dried (48 hours at room temperature, under adapted air aspiration)

Glue samples must be accompanied by Safety Data Sheet (SDS) and Technical sheet to allow laboratories to perform polymerization according to supplier instructions.

Substance family	Substance Name	Abbr.	CAS Number	AQC limit for information	Strictest Regulation	Test Method
Aldehyde	Formaldehyde	-	50-00-0	75 mg/kg	GB 20400-2006	ISO 17226-1 adapted
Aromatic amines	Biphenyl-4-ylamine	-	92-67-1	30 mg/kg each	REACH XVII (entry 43)	EN 14362-1 & -3 adapted if not available ISO 17234-1 adapted
	Benzidine	-	92-87-5			
	4-chloro-o-toluidine [1]	-	95-69-2			
	2-naphthylamine [1]	-	91-59-8			
	4-o-tolylazo-o-toluidine	-	97-56-3			
	5-nitro-o-toluidine	-	99-55-8			
	4-chloroaniline	-	106-47-8			
	4-methoxy-m-phenylenediamine [1]	-	615-05-4			
	4,4'-methylenedianiline	MDA	101-77-9			
	3,3'-dichlorobenzidine	-	91-94-1			
	3,3'-dimethoxybenzidine	-	119-90-4			
	4,4'-bi-o-toluidine	-	119-93-7			
	4,4'-methylenedi-o-toluidine	-	838-88-0			
	6-methoxy-m-toluidine	-	120-71-8			
	4,4'-methylenebis[2-chloroaniline]	MOCA	101-14-4			
	4,4'-oxydianiline	-	101-80-4			
	4,4'-thiodianiline	-	139-65-1			
	o-toluidine	-	95-53-4			
	4-methyl-m-phenylenediamine	-	95-80-7			
	2,4,5-trimethylaniline [1]	-	137-17-7			
	o-anisidine	-	90-04-0			
	4-aminoazobenzene	-	60-09-3			
	2,6-xylidine	-	87-62-7			
	2,4-xylidine	-	95-68-1			
Bisphenols	4,4'-isopropylidenediphenol (bisphenol A)	BPA	80-05-7	1'000 mg/kg	REACH SVHC	Internal method inspired by ISO 11936
	4,4'-sulphonyldiphenol (bisphenol S)	BPS	80-09-1	1'000 mg/kg		
	2,2'-methylenediphenol (bisphenol F)	BPF	2467-02-9	for information	AQC	
Chlorine compounds	Alkanes, C10-13, chloro	SCCP	85535-84-8	1'000 mg/kg	REACH SVHC	Internal method inspired by ISO 18219
	Alkanes, C14-17, chloro	MCCP	85535-85-9	1'000 mg/kg	REACH SVHC	
Diester	Ethylene dimethacrylate	EGDMA	97-90-5	not detected	AQC	Internal method
Epoxides	Triglycidyl isocyanurate	TGIC	2451-62-9	1'000 mg/kg	REACH SVHC	Internal method
	Triglycidyl isocyanurate (beta)	β-TGIC	59653-74-6	1'000 mg/kg		
Flame retardants	Polybromobiphenyls	PBB	59536-65-1	not detected	REACH XVII entry 8 (AQC)	EPA 8270C If not available ISO 17881 adapted
	Diphenyl ether, octabromo derivative	OctaBDE	32536-52-0	1'000 mg/kg	REACH XVII entry 45	
	Diphenyl ether, pentabromo derivative	PentaBDE	32534-81-9	10 mg/kg	EU POP	
	Diphenyl ether, decabromo derivative	DecaBDE	1163-19-5			
	Diphenyl ether, tetrabromo derivative	TetraBDE	40088-47-9			
	Diphenyl ether, heptabromo derivative	HeptaBDE	68928-80-3			
	Diphenyl ether, hexabromo derivative	HexaBDE	36483-60-0			
	Diphenyl ether, nonabromo derivative*	NonaBDE	63936-56-1		AQC	
	Tetrabromobisphenol A	TBBPA	79-94-7	1'000 mg/kg each	REACH SVHC	
	Bis(2-ethylhexyl) tetrabromophthalate	-	26040-51-7			
	1,1'-[ethane-1,2-diylbisoxy]bis[2,4,6-tribromobenzene]	-	37853-59-1			
	Hexabromocyclododecane and isomers	HBCDD	Several CAS	not detected	Proposition 65 (AQC)	
	Tris(2-chloroethyl) phosphate	TCEP	115-96-8	not detected	REACH XIV	

* not listed per se but indicated on EU POP website as present in commercial decaBDE mixture.

Substance family	Substance Name	Abbr.	CAS Number	AQC limit for information	Strictest Regulation	Test Method
Metals	Chromium (VI) and its related compounds [2]	Cr(VI)	18540-29-9	3 mg/kg of dry matter	REACH XVII entry 47 (AQC)	IEC 62321
	Cadmium	Cd	7440-43-9	100 mg/kg	REACH XVII entry 23	EN 16711-1
	Lead	Pb	7439-92-1	90 mg/kg	16CFR1303	
	Arsenic	As	7440-38-2	1 mg/kg	AQC	
	Mercury	Hg	7439-97-6	1 mg/kg	JP 112	
	Cobalt	Co	7440-84-4	for information	REACH XVII proposal (AQC for Ni)	
	Nickel	Ni	7440-02-0	5 mg/kg		
Phenols	Octylphenols - 4-(1,1,3,3-tetramethylbutyl)phenol	OP (PTOP)	- 140-66-9	100 mg/kg (sum OP+OPEO)	REACH SVHC OChim (AQC)	ISO 18857 adapted
	Octylphenol ethoxylates - 4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated	OPEO -	- 9002-93-1 2497-59-8 2315-67-5 2315-61-9		REACH XIV (AQC)	
	Nonyphenols - 4-Nonylphenol, branched and linear - Isononylphenol	NP 4-NP -	25154-52-3 several CAS 11066-49-2	100 mg/kg (sum NP+NPEO)	REACH SVHC Ochim (AQC)	
	Nonylphenol Ethoxylates - 4-Nonylphenol, branched and linear, ethoxylated Incl. isononylphenol ethoxylated	NPEO (4-NPEO) -	- several CAS 37205-87-2		REACH XIV (AQC)	
	p-(1,1-dimethylpropyl)phenol	PTPP PTAP	80-46-6	1'000 mg/kg	REACH SVHC	
	4-heptylphenol, branched and linear	4-HP	1987-50-4 72624-02-3			
	para-tert-butylphenol	PTBP	98-54-4	25 mg/kg	REACH SVHC (AQC)	
	Resorcinol	-	108-46-3	1000 mg/kg	AGEC SVHC	Internal method
Phthalates	Diisobutyl phthalate	DIBP	84-69-5	1000 mg/kg (sum)	REACH XVII entry 51	ISO 14389 adaped
	Dibutyl phthalate	DBP	84-74-2			
	Benzyl butyl phthalate	BBP	85-68-7			
	Bis(2-ethylhexyl) phthalate	DEHP	117-81-7			
	Bis(2-methoxyethyl) phthalate	DMEP	117-82-8	1000 mg/kg (each)	REACH SVHC	
	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	DHNUP (L&R)	68515-42-4			
	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	-	71888-89-6			
	Di-isopentyl phthalate	DIPP	605-50-5			
	Di-n-pentyl phthalate	DnPP	131-18-0			
	N-pentyl-isopentylphthalate	nPIPP	776297-69-9			
	1,2-Benzenedicarboxylic acid, dipentyl ester, branched and linear	DNiPP (L&R)	84777-06-0			
	Di-n-hexyl phthalate	DnHP	84-75-3			
	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	DIHxP (L&R)	68515-50-4			
	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters or mixed decyl and hexyl and octyl diesters	-	68648-93-1 68515-51-5			
	Dicyclohexyl phthalate	DHCP	84-61-7			
	Diisohexyl phthalate	DIHP	71850-09-4			
	Di-n-octyl phthalate	DNOP	117-84-0		REACH XVII entry 52 (AQC)	
	Diisononyl' phthalate	DINP	28553-12-0 68515-48-0			
	Diisodecyl phthalate	DIDP	26761-40-0 68515-49-1			
	Diisooctyl phthalate	DIOP	27554-26-3		AGEC SVHC	

Substance family	Substance Name	Abbr.	CAS Number	AQC limit	Strictest Regulation	Testing Method
Polycyclic Aromatic Hydrocarbons (PAHs)	Benzo(a)pyrene	BaP	50-32-8	1 mg/kg (each)	REACH XVII entry 50 ORRChim	AfPS-GS-2019-01-PAK
	Benzo(a)anthracene	BaA	56-55-3			
	Benzo(b)fluoranthene	BbF	205-99-2			
	Benzo(e)pyrene	BeP	192-97-2			
	Benzo(j)fluoranthene	BjF	205-82-3			
	Benzo(k)fluoranthene	BkF	207-08-9			
	Chrysene	CHR	218-01-9			
	Dibenzo(a,h)anthracene	DBA	53-70-3			
	Anthracene	-	120-12-7	1'000 mg/kg	REACH SVHC	
OTHER SVHCs (various)	Terphenyl, hydrogenated	-	-	1'000 mg/kg (each)	REACH SVHC	Internal method
	2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone	-	119313-12-1			
	2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	-	71868-10-5			
	1-vinylimidazole	-	1072-63-5			
	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol	-	119-47-1			
	Barium diboron tetraoxide	-	13701-59-2			
	Diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	-	75980-60-8			
	2-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol	UV-329	3147-75-9			
	Bumetrizole	UV-326	3896-11-5			
	Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol also called Phenol, methylstyrenated	- -	- 68512-30-1			
Silicones	Octamethylcyclotetrasiloxane	D4	556-67-2	1'000 mg/kg (each)	REACH SVHC OChim	Internal method
	Decamethylcyclopentasiloxane	D5	541-02-6			
	Dodecamethylcyclohexasiloxane	D6	540-97-6			
organo(Stannic) compounds	Tributyltin and related compounds Incl. TBT metacrylate	TBT	several CAS incl. 2155-70-6	1000 mg/kg (each)	REACH XVII entry 20 & REACH SVHC	ISO 16179 adapted
	Triphenyltin and related compounds Incl. TPT hydroxide	TPT	several CAS incl. 76-87-9			
	All other tri-substituted tin compounds	-	Several CAS			
	Dibutyltin and related compounds	DBT	several CAS incl. 683-18-1			
	Dioctyltin and related compounds	DOT	several CAS			
	di-μ-oxo-di-n-butylstanniohydroxyborane	DBB	75113-37-0		ORRChim REACH XVII entry 21	
Volatile Organic Compounds (VOCs)	Hexachlorobuta-1,3-diene	-	87-68-3	not detected	EU POP	EPA 5021A EPA 8260C or internal Headspace GC-MS
	1,1,1-Tricholoroethane	-	71-55-6	not detected	ORRChim	
	1,1,2-Tricholoroethane	-	79-00-5	not detected		
	Trichloroethylene		79-01-6	not detected	REACH XIV	
	N,N-dimethylformamide	DMFo	68-12-2	1000 mg/kg	REACH SVHC Ochim	
	Formamide	-	75-12-7	1000 mg/kg		
	N,N-Dimethylacetamide	DMAC	127-19-5	1000 mg/kg		
	2-ethoxyethanol	EGEE	110-80-5	1000 mg/kg		
	2-(2-butoxyethoxy)ethanol	DEGBE	112-34-5	for information	REACH XVII entries 55 & 54 ORRChim (AQC)	
	2-(2-methoxyethoxy)ethanol	DEGME	111-77-3			
	n-hexane	-	110-54-3		Prop65	
	Tetrachloroethylene	-	127-18-4			
	Benzene	BTEX	71-43-2			
	Toluene		108-88-3			
	Ethylbenzene		100-41-4			
	Meta-Xylene		108-38-3		AQC	
	Ortho-Xylene		95-47-6			
	Para-Xylene		106-42-3			

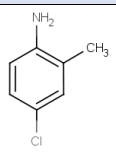
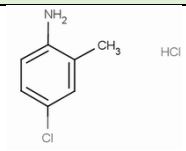
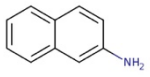
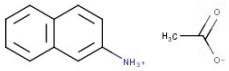
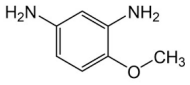
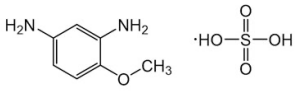
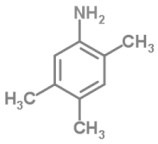
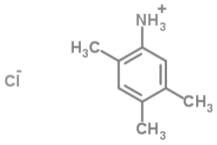
COMPLEMENTARY TESTING ON FINISH BRACELET GLUED WITH **PU** BASED ADHESIVE/GLUE

Substance family	Substance Name	Abbr.	CAS Number	AQC limit in BRACELET	Regulation	AQC required Method
diisocyanates	Triphenylmethane-4, 4', 4''- triisocyanate	-	24225-91-5	1 mg/kg	AQC	EN 13130-8:2004 (UL-ICQ)
	Diisocyanate d'hexamèthylene	-	822-06-0	1 mg/kg		
	Polyisocyanate	-	28182-81-2	1 mg/kg		
	4-Toluensulfonylisocyanate	-	4083-64-1	1 mg/kg		
	Diisocyanate-toluol	-	26471-62-5	1 mg/kg		
	Hydrophiles, aliphatisches Polyisocyanate	-	160994-68-3	1 mg/kg		
	2,6-toluene diisocyanate	-	91-08-7	1 mg/kg		
	Diphenylmethane-4-4' diisocyanate	-	101-68-8	1 mg/kg		
	2,4-toluene diisocyanate	-	584-84-9	1 mg/kg		
	Cyclohexyl isocyanate	-	3173-53-3	1 mg/kg		
	1,5-naphtalene diisocyanate	-	3173-72-6	1 mg/kg		
	Phenyl isocyanate	-	103-71-9	1 mg/kg		
	2,4 toluene diisocyanate dimer	-	26747-90-0	1 mg/kg		

COMPLEMENTARY TESTING ON FINISH BRACELET GLUED WITH **NEOPRENE** ADHESIVE/GLUE

Substance family	Substance Name	Abbr.	CAS Number	AQC limit in BRACELET	Regulation	AQC required Method
Pine tree resin acids	Colophony: abietic acid	-	514-10-3	for information	AQC	Solvent extraction GC-MS (presence/absence)
	Colophony: dehydroabietic acid	-	19407-37-5			
	Colophony: isopimaric acid	-	5835-26-7			
	Colophony: neoabietic acid	-	471-77-2			
	Colophony: palustric acid	-	1945-53-5			
phenols	para-tert-butylphenol	PTBP	98-54-4	20 mg/kg	REACH SVHC (AQC)	Solvent extraction GC-MS
	p-(1,1-dimethylpropyl)phenol	PTPP PTAP	80-46-6	1000 mg/kg	REACH SVHC	
	4-heptylphenol, branched and linear	4-HP	1987-50-4 72624-02-3	1000 mg/kg		

[1] Analytical equivalence between aromatic amines listed in entry 43 and entry 72 of REACH Annex XVII

Entry 43			Entry 72		
Substance name	**CAS number**	**Formula**	**Substance name**	**CAS number**	**Formula**
4-chloro-o-toluidine	95-69-2		4-chloro-o-toluidinium chloride	3165-93-3	
2-naphthylamine	91-59-8		2-naphtylamoniumacetate	553-00-4	
4-methoxy-m-phenylenediamine	615-05-4		4-methoxy-m-phenylenediammonium sulphate	39146-41-7	
2,4,5-trimethylaniline	137-17-7		2,4,5-trimethylaniline hydrochloride	21436-97-5	

[2] Chromium (VI) related substances stands for the following substances:

- Sodium chromate (CAS 7775-11-3)
- Sodium dichromate (CAS 7789-12-0, CAS 10588-01-9)
- Potassium chromate (CAS 7789-00-6)
- Potassium dichromate (CAS 7778-50-9)
- Ammonium dichromate (CAS 7789-09-5)
- Chromium trioxide (CAS 1333-82-0)
- Chromic acid (CAS 7738-94-5)
- Oligomers of chromic acid and dichromic acid and strontium chromate (CAS 7789-06-2)
- Potassium hydroxyoctaoxodizincatedichromate (1-) (CAS 11103-86-9)
- Pentazinc chromate octahydroxide (CAS 49663-84-5)
- Dichromium tris(chromate) (CAS 24613-89-6)

LIS004_08 AQC RSL for glues

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