

 ASSOCIATION POUR L'ASSURANCE QUALITÉ DES FABRICANTS DE BRACELETS CUIR		<b>DOC nb</b>	LIS004_06
		<b>Replace</b>	LIS004_05
<b>RESTRICTED SUBSTANCES LIST FOR GLUES</b>			
<b>Application date: 28Mar22</b>			Page 1/7
Written by	Quality review (signature/date)	Process owner (signature/date)	
	 Mar 24, 2022	 Mar 24, 2022	
Sébastien Bagot / Technical & Quality Manager	David Astier / QA&QC Officer	Sébastien Bagot / Technical & Quality Manager	

### Change log

Version	Date	Modification
04	27Aug18	<ul style="list-style-type: none"> <li>✓ Addition of DHCP (Phthalate)</li> <li>✓ Update and precision about diisocyanates list</li> <li>✓ Addition of total metals (Cd, Pb, As, Hg, Cr) for native/polymerized glues</li> </ul>
05	12Jan21	<ul style="list-style-type: none"> <li>✓ Full review of the document in the context of the new AQC strategy to generate proofs of compliance</li> <li>✓ Phthalates: new REACH annex XVII limit for the 4 most regulated phthalates</li> <li>✓ PTBP : limit change for glue testing in finish bracelet (from "not detected" to 20 mg/kg) : Decision TWG 22Aug19</li> </ul>
06	28Mar22	Revision – Decision TWG 24Mar22 <ul style="list-style-type: none"> <li>✓ Suppression of reference to old annexes A and B of EU POP regulation (before recast in 2019)</li> <li>✓ Alkyphenols: precision of isononylphenol within the 4-nonylphenol, branched and linear family</li> <li>✓ Alkyphenols: change of regulatory reference (SVHC to Annex XIV)</li> <li>✓ MCCPs: entry in SVHC list (08Jul21) -&gt; new limit 1'000 mg/kg</li> <li>✓ PAHs: update of method version</li> <li>✓ Add of a new SVHC entry (17Jan22): 6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol</li> <li>✓ Reorganisation of the complementary testing on bracelets</li> <li>✓ Suppression of Allergen risk reduction program table at the end of the document</li> </ul>

### 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.

## RESTRICTED SUBSTANCES LIST FOR GLUES

### 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 on the basis of 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	-
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.

### AQC limit for REACH 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.

 <small>ASSOCIATION POUR L'ASSURANCE QUALITÉ DES FABRICANTS DE BRACELETS CUIR</small>	LIS004_06
<b>RESTRICTED SUBSTANCES LIST FOR GLUES</b>	Page 3/7

There is no regulatory requirement to limit SVHC 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 also in leather 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 in 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.

## RESTRICTED SUBSTANCES LIST FOR GLUES

Substance family	Substance Name	Abbr.	CAS Number	AQC limit	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)	ISO 17234 adapted
	Benzidine	-	92-87-5			
	4-chloro-o-toluidine	-	95-69-2			
	2-naphthylamine	-	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	-	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	-	137-17-7				
4-methyl-m-phenylenediamine	-	90-04-0				
4-aminoazobenzene	-	60-09-3				
2,6-xylidine	-	87-62-7				
2,4-xylidine	-	95-68-1				
Chlorine compounds	Alkanes, C10-13, chloro	SCCP	85535-84-8	1000 mg/kg	REACH SVHC ORRChim EU POP. Annex A	Solvent extraction GC-MS detection
	Alkanes, C14-17, chloro	MCCP	85535-85-9	1000 mg/kg	REACH SVHC	
Epoxides	Triglycidyl isocyanurate	TGIC	2451-62-9	1000 mg/kg	REACH SVHC	solvent extraction GC-MS
	Triglycidyl isocyanurate (beta)	β-TGIC	59653-74-6	1000 mg/kg		
Flame retardants	Polybromobiphenyls	PBB	59536-65-1	not detected	REACH XVII entry 8 (AQC)	ISO 17881 adapted
	Diphenyl ether, pentabromo derivative	PentaBDE	32534-81-9	not detected	EU POP annex A	
	Diphenyl ether, octabromo derivative	OctaBDE	32536-52-0	not detected	EU POP annex A	
	Diphenyl ether, decabromo derivative	DecaBDE	1163-19-5	not detected	EU POP Annex A	
	Diphenyl ether, tetrabromo derivative	TetraBDE	40088-47-9	not detected	EU POP Annex A	
	Diphenyl ether, heptabromo derivative	HeptaBDE	68928-80-3	not detected	EU POP annex A	
	Diphenyl ether, hexabromo derivative	HexaBDE	36483-60-0	not detected	EU POP annex A	
	Diphenyl ether, nonabromo derivative	NonaBDE	63936-56-1	not detected	AQC	
	Hexabromocyclododecane and isomers	HBCDD	Several CAS	not detected	Proposition 65 (AQC)	
	Tri(aziridin-1-yl) phosphine oxide	TEPA	545-55-1	not detected	REACH XVII entry 7 (textile bracelets)	
	Tris(2-chloroethyl) phosphate	TCEP	115-96-8	not detected	REACH XIV (AQC)	
Tris(2,3-dibromopropyl) phosphate	TRIS	126-72-7	not detected	REACH XVII entry 4 (textile bracelets)		
Metals	Chromium (VI)	Cr(VI)	18540-29-9	3 mg/kg of dry matter	REACH XVII entry 47 (AQC)	ISO 17075-2 adapted
	Cadmium	Cd	7440-43-9	100 mg/kg	REACH XVII entry 23	ISO 17072-2 adapted
	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	
	Tin <sup>1</sup>	Sn	7440-31-5	1 mg/kg	REACH XVII entry 20 (AQC)	

## RESTRICTED SUBSTANCES LIST FOR GLUES

Substance family	Substance Name	Abbr.	CAS Number	AQC limit	Strictest Regulation	Testing Method	
Phenols	Octylphenols - 4-(1,1,3,3-tetramethylbutyl)phenol	OP PTOP	- 140-66-9	100 mg/kg (sum OP+OPEO)	REACH XIV (AQC)	ISO 18218 adapted	
	Octylphenol ethoxylates - 4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated	OPEO -	- 9002-93-1 2497-59-8 2315-67-5 2315-61-9				
	Nonylphenols - 4-Nonylphenol, branched and linear	NP 4-NP	25154-52-3 several CAS	100 mg/kg (sum NP+NPEO)	REACH XIV (AQC)		
	Nonylphenol Ethoxylates - 4-Nonylphenol, branched and linear, ethoxylated incl. isononylphenol	NPEO (4-NPEO)	- several CAS 11066-49-2				
	p-(1,1-dimethylpropyl)phenol	PTPP PTAP	80-46-6	1000 mg/kg	REACH SVHC		internal method
	4-heptylphenol, branched and linear	4-HP	1987-50-4 72624-02-3				
	para-tert-butylphenol	PTBP	98-54-4				
Phthalates	Diisobutyl phthalate	DIBP	84-69-5	1000 mg/kg (sum)	REACH XVII entry 51	ISO 16181	
	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				
Di-"isononyl" phthalate	DINP	28553-12-0 68515-48-0	REACH XVII entry 52 (AQC)				
Di-"iso-decyl" phthalate	DIDP	26761-40-0 68515-49-1					
Polycyclic Aromatic Hydrocarbons  (PAHs)	Benzo(a)pyrene	BaP	50-32-8	1 mg/kg	REACH XVII entry 50  ORRChim	AfPS-GS- 2019-01-PAK	
	Benzo(a)anthracene	BaA	56-55-3	1 mg/kg			
	Benzo(b)fluoranthene	BbF	205-99-2	1 mg/kg			
	Benzo(e)pyrene	BeP	192-97-2	1 mg/kg			
	Benzo(j)fluoranthene	BjF	205-82-3	1 mg/kg			
	Benzo(k)fluoranthene	BkF	207-08-9	1 mg/kg			
	Chrysene	CHR	218-01-9	1 mg/kg			
	Dibenzo(a,h)anthracene	DBA	53-70-3	1 mg/kg			
SVHC (various)	6,6'-di-tert-butyl-2,2'-methylene-di-p-cresol	-	119-47-1	1'000 mg/kg	REACH SVHC	Internal method	

## RESTRICTED SUBSTANCES LIST FOR GLUES

Substance family	Substance Name	Abbr.	CAS Number	AQC limit	Strictest Regulation	Testing Method
Volatile Organic Compounds (VOCs)	Hexachlorobuta-1,3-diene	-	87-68-3	not detected	EU POP Annex A	EPA 5021A EPA 8260C or internal Headspace GC-MS
	1,1,1-Trichloroethane	-	71-55-6	not detected	ORRChim	
	1,1,2-Trichloroethane	-	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 entry 55 ORRChim (AQC)	
	2-(2-methoxyethoxy)ethanol	DEGME	111-77-3		REACH XVII entry 54 ORRChim (AQC)	
	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					
Ortho-Xylene	95-47-6	AQC				
Para-Xylene	106-42-3					

<sup>1</sup> In case of total Tin > 1 mg/kg, the following testing is performed

Substance family	Substance Name	Abbr.	CAS Number	AQC limit	Regulation	Test Method
Organotin	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			
	Diocetyl tin and related compounds	DOT	several CAS			
	di-μ-oxo-di-n-butylstanniohydroxyborane	DBB	75113-37-0		ORRChim REACH XVII entry 21	

## RESTRICTED SUBSTANCES LIST FOR GLUES

### 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'hexaméthylène	-	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 EPOXY ADHESIVE/GLUE

Substance family	Substance Name	Abbr.	CAS Number	AQC limit in BRACELET	Regulation	AQC required Method
Bisphenols	Bisphenol A	BPA	80-05-7	1000 mg/kg	REACH SVHC	internal method
	Bisphenol S	BPS	80-09-1	for information	REACH restriction intention	
	Bisphenol F	BPF	620-92-8			
	Bisphenol AF	BPAF	1478-61-1			

### 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	25 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		

### COMPLEMENTARY TESTING ON FINISH BRACELET GLUED WITH ACRYLIC ADHESIVE/GLUE

Substance family	Substance Name	Abbr.	CAS Number	AQC limit in BRACELET	Regulation	AQC required Method
carboxylic acid ester	Ethylene dimethacrylate	EDGMA	97-90-5	not detected	AQC	Solvent extraction GC-MS









# LIS004\_06 AQC RSL for glues

Final Audit Report

2022-03-24

Created:	2022-03-24
By:	Sébastien Bagot (sebastien.bagot@aqc-asso.ch)
Status:	Signed
Transaction ID:	CBJCHBCAABAARwakHCXbxo0fleuVdg5ivERPAZfYMFfN

## "LIS004\_06 AQC RSL for glues" History

-  Document created by Sébastien Bagot (sebastien.bagot@aqc-asso.ch)  
2022-03-24 - 12:45:17 PM GMT- IP address: 188.61.109.156
-  Document emailed to David Astier (david.astier@aqc-asso.ch) for signature  
2022-03-24 - 12:46:05 PM GMT
-  Email viewed by David Astier (david.astier@aqc-asso.ch)  
2022-03-24 - 2:37:01 PM GMT- IP address: 178.38.146.236
-  Document e-signed by David Astier (david.astier@aqc-asso.ch)  
Signature Date: 2022-03-24 - 2:44:42 PM GMT - Time Source: server- IP address: 178.38.146.236
-  Document emailed to Sébastien Bagot (sebastien.bagot@aqc-asso.ch) for signature  
2022-03-24 - 2:44:43 PM GMT
-  Email viewed by Sébastien Bagot (sebastien.bagot@aqc-asso.ch)  
2022-03-24 - 3:12:40 PM GMT- IP address: 188.61.109.156
-  Document e-signed by Sébastien Bagot (sebastien.bagot@aqc-asso.ch)  
Signature Date: 2022-03-24 - 3:13:10 PM GMT - Time Source: server- IP address: 188.61.109.156
-  Agreement completed.  
2022-03-24 - 3:13:10 PM GMT