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Leather chemicals since 1966

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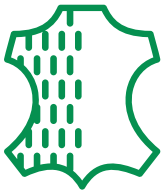
Eco-leather portfolio

Welcome to the green side of leather

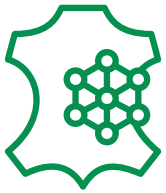


Certifications

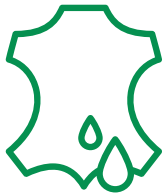
We produce a wide range of products for the leather industry covering all stages of the manufacturing process



Beamhouse



Tanning & Retanning



Fatliquoring



Finishing

QUIMSER

Eco-leather portfolio

Leather chemicals since 1966



More than 30 years exporting high quality

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Eco-leather portfolio

Leather chemicals since 1966



There is no planet B

Atacama Desert

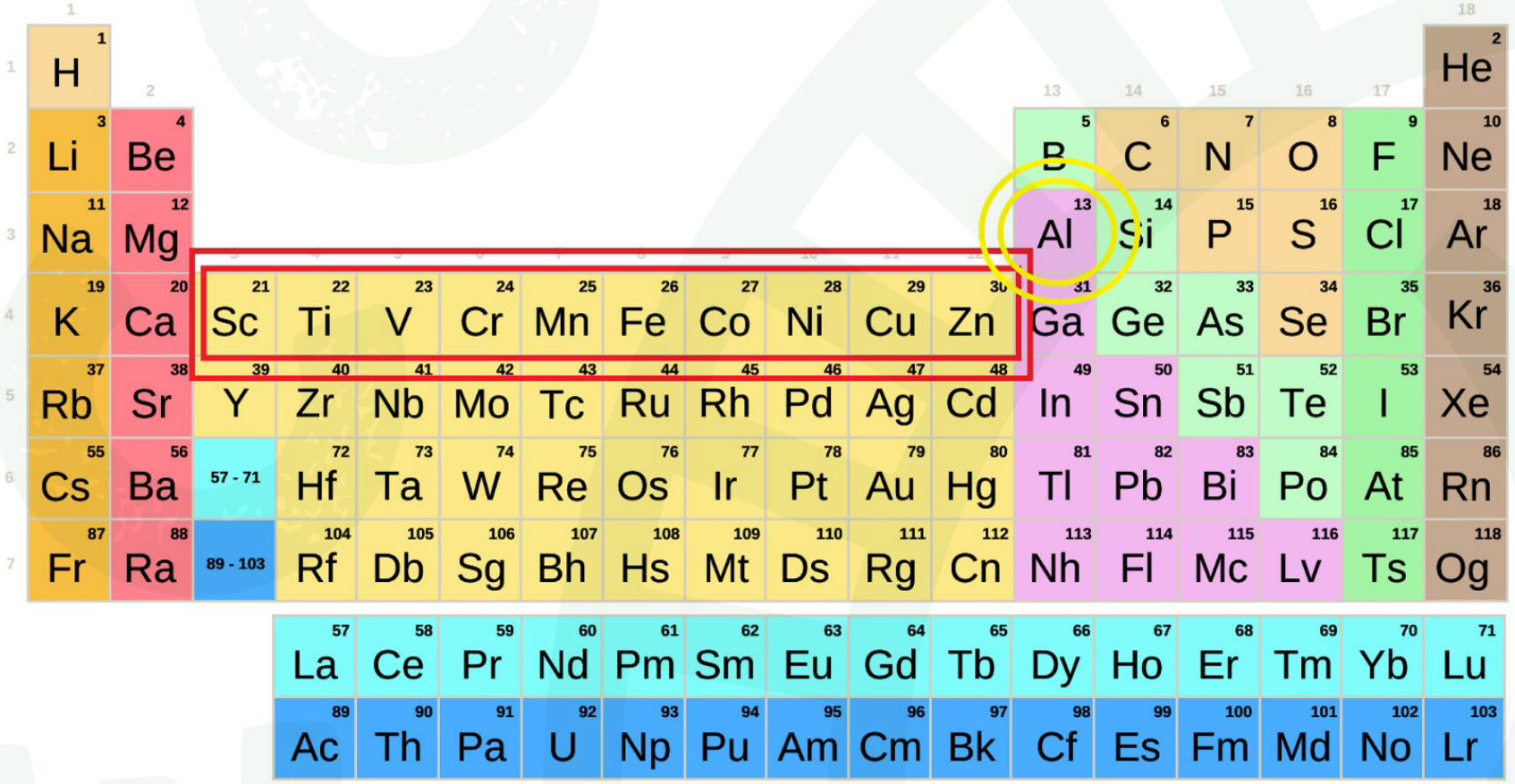


Current situation - Types of tanning

Tanning	Chemical	Origin	% in tanning	Price	TS (ºC)	Colour in tanned leather	Light fastness
WET BLUE	Chrome III	Mine	5-10	€	100	Bluish	No
WET WHITE	Phenol Naphthalene Aldehyde Disulphone Triazine	Petrol Chemistry	5-30	€€€	85	Whitish	Yes
VEGETAL EXTRACTS	Mimosa Quebracho Chestnut Tara Others	**Mimosa** is from tree bark. **Quebracho** is from tree. **Chesnut** is from tree. **Tara** is from grinder seed.	8-40	€€	75-80	Brownish	Depends of the extraxt
WET GREEN	Olive extract	Olive seeds tree.	8-40	€€€	75-80	Greenish	No
WHITE MINERAL	Zirconium Titanium	Mine	8-15	€€€	80	White	No
ALUMINIUM	Aluminium salts	Mine	3-10	€	80-85	White to whitish	No
SERTAN WT	**Zeolite**	**Mine**	**6-10**	**€**	**75-80**	**Whitish**	**No**
VEGAN LEATHER	Acrylic PU PVC Polymer-Resin Other	Petrol and other	NA	€		NA	NA

Current situation - Pros ans cons

Tanning	Negative points	Toxicity	Biodegradation time	Compostability	Water waste problem	ZDHC-MRSL restrictions
WET BLUE	Can produce Chrome VI.	Yes	Extremely long	Very bad	High	Yes
WET WHITE	Phenol derivates and bisphenols. Wastewater toxic chem.	Yes	Medium	Very bad	Medium high	Yes
VEGETAL EXTRACTS	Few producers in the world. **Mimosa** bark need 6-12 years to renew. **Quebracho** tree need 60-80 years to grow	No	Medium	Excellent	High BOD	No
WET GREEN	This tecnology is not avaiable for all world. There are few quantity in the market.	No	Medium	Excellent	High BOD	No
WHITE MINERAL	No	Yes	Long	Very bad	Very high	Yes
ALUMINIUM	No	No	Medium	Regular	Medium high	No
SERTAN WT	**No**	**No**	**Short**	**Excellent**	**No**	**No**
VEGAN LEATHER	PVC resins and other toxic chemicals. Microplastic.	No	Very long	Very bad	Very high	NA



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ZDHC Restricted sustances List

Polycyclic Aromatic Hydrocarbons (PAHs)					
CASNO	Substance	Applicability	Supplier Guidance	Formulation Limit	General Techniques for Analysing Chemicals
83-32-9	Acenaphthene [3,4]	Textile	No intentional use	Sum of substances [3] = 200 ppm	GC-MS
		Leather	No intentional use	Sum of substances [4] = 200 ppm	
		Polymers (R,F,A)*	No Limit		
86-73-7	Fluorene [3,4]	Textile	No intentional use	Sum of substances [3] = 200 ppm	GC-MS
		Leather	No intentional use	Sum of substances [4] = 200 ppm	
		Polymers (R,F,A)*	No Limit		
91-20-3	Naphthalene [3]	Textile	No intentional use	Sum of substances [3] = 200 ppm	GC-MS
		Leather	No intentional use	300 ppm	
		Polymers (R,F,A)*	No Limit		

Phenol

Potential Uses in Apparel and Footwear Textile Processing

Phenol is not deliberately used in textiles or footwear but trace amounts of phenol can be found in many chemical formulations.

CASNO	Substance	Intent
108-95-2	Phenol	ZDHC is looking for safe limits for phenol as a contaminant in textile chemical formulations.

ZDHC Restricted sustances List

Total Heavy Metals

In the list below the formulation limit for As, Cd, Hg, Pb and Cr VI apply to all types of formulation. Where there is a specific limit for pigments that that is different to the general limit this is shown in brackets.
The formulation limits for Sb, Cr, Ba, Se, Sn, Ni, Cu, Co and Ag only apply to dye and/or pigment formulations. Any differences between limits for dyes and pigments are indicated in the formulation limit column.

The limits for the heavy metals do not apply to colourants containing a listed metal as an inherent compositional part (e.g. metal-complex colorants, the double salts of certain cationic colourants or extenders like barium sulfate). When using any colourant with listed metals as an inherent compositional part, wet processors need to be aware of the need to comply with brand RSL limits with respect to extractable metals from dyed materials and they also need to be aware of the metal limits in the ZDHC wastewater guidelines. Where RSL and/or wastewater issues are observed wet processors should discuss this with supply chain partners.
For the listed exceptions, laboratory tests to determine separately metal contaminants that are not bound into a colourant (free metals) are under development.

Potential Uses in Apparel and Footwear Textile Processing

Although typically associated with leather tanning, chromium VI also may be used in the dyeing of wool (after the chroming process).

CASNO	Substance	Applicability	Supplier Guidance	Formulation Limit	General Techniques for Analysing Chemicals
18540-29-9	Chromium (VI)	Textile	No intentional use	10 ppm	Inductively coupled plasma-optical emission spectrometry (ICP-OES), atomic absorption spectroscopy (AAS)
		Leather	No intentional use	10 ppm	
		Polymers (R,F,A)*	No intentional use	10 ppm	
7440-36-0	Antimony	Textile	No intentional use	Dye 50/ Pigment 250 ppm	Acid digestion, ICP
		Leather	No intentional use	Dye 50/ Pigment 250 ppm	
		Polymers (R,F,A)*	No intentional use	Dye 50/ Pigment 250 ppm 100 ppm	
		Leather	No intentional use	Dyes and Pigments 100 ppm	
		Polymers (R,F,A)*	No intentional use	Dyes and Pigments 100 ppm	
7440-39-3	Barium	Textile	No intentional use	Dyes and Pigments 100 ppm	Acid digestion, ICP

SERTAN WT chromium free tanning agent

Quimser's laboratory (R+D+I) cares about finding alternatives and solutions to help the future of the sector through actions such as:

- Eliminating the use of chromium
- Water saving
- Wastewater with low environmental impact
- Reducing process time *(electricity consumption)*
- Obtaining leathers highly biodegradable
- Using environmentally friendly chemicals

For this reason, we have developed the **SERTAN WT**: A product that is more environmental-friendly and it does not generate problems in wastewater. The aim is to respond to the aforementioned points and provide solutions for a world that is increasingly demanding on the environment impact that the processes and the products generate in it.

SERTAN WT chromium free tanning agent

Specifications:

- **Chemical composition:** Organic, and inorganic salts
- **Appearance:** Solid in powder
- **Colour:** Ivory
- **pH:** 4,0±0,5
- **Charge:** Cationic



Certifications

SERTAN WT chromium free tanning agent

General properties:

- **SERTAN WT** is a chemical free of phenol, naphthalene, sulphone, aldehyde and formaldehyde.
- In the retanning combinated with vegetable tannins, the leather obtained has an extra softness with increased fullness without altering its character of vegetable leather.
- **SERTAN WT** gives an excellent filling effect in the loose parts of the hidden. It can minimize the usage of polymers and resins. It also eliminates the usage of glutaraldehyde based tanning agents. It is compatible with other anionic synthetic, natural tanning and retanning agents.
- Leather tanned with **SERTAN WT** has outstanding dyeing ability with brilliant dyeing effect and good uniformity. It is also excellent as a bleaching agent in the retanning process.

Certifications

What does biodegradable mean?

The adjective biodegradable qualifies those substances that can be degraded by the action of a biological agent, such as certain animals, fungi, and bacteria that can achieve the decomposition of these types of materials.

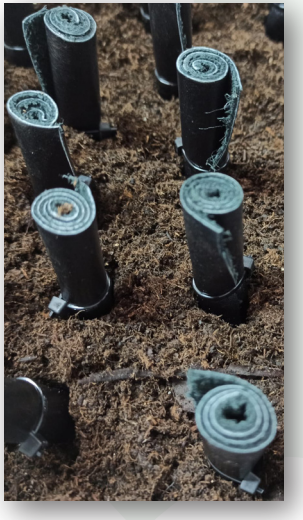
When a product is biodegradable?

We refer to a biodegradable product or material when it can be decomposed naturally and ecologically in a relatively short time, non-contaminating the environment and becoming a friendly compost product for the earth.

Biodegradability test procedure

We have taken different skin samples in order to find out how long it takes for them to decompose, comparing each article and checking the differences of biodegradation to compost.





Used materials:

- 1 bucket of 5lts.
(one for each leather sample)
- Garden land
- 2 liters of water
- Cutter
- Leather cuttings

We used universal compost for plants *(a mix of vegetal and organic compounds)* with the folllowing characteristics:

Biodegradability conditions:

- **Temperature:** 40ºC
- **Humidity:** 40-60%

Process:

1. We cut pieces of all leathers *(wet blue crust and wet white crust...)* and roll them individually. This rolls that we use to holding into compound and we have evolution composting comparative.

2. We take two buckets and we put 3-5 cm garden soil. Then we hold all leather samples.
We cover all leather rolls with land. It is important not to see the leathers.

3. When leathers are covered, we introduce around 2 lt. of water. Then we close the bucket.
Is important to keep an internal humidity between 40-60%.

4. Finally we store the buckets into a warm room (35-40º)

Test 1. Biodegradability test of sheepskin

We have taken different skin samples in order to find out how long it takes for them to decompose, comparing each article and checking the differences of biodegradation to compost.

STEP 1.

We sampled 4 tanned and retanned sheepskins with different processes and products to compare their level of biodegradability.

1. Tanned with **Chrome**. Retanned with syntans.

2. Tanned with **vegetable extracts** and **aldehyde**. Retanned with syntans.

3. Tanned with **SERTAN WT**. The skin was dried without retanning.

4. Tanned with **SERTAN WT**. Retanned with vegetable extracts.



STEP 2.

We introduced the rolls of leather inside the gardening compound in July-8th, 2020.

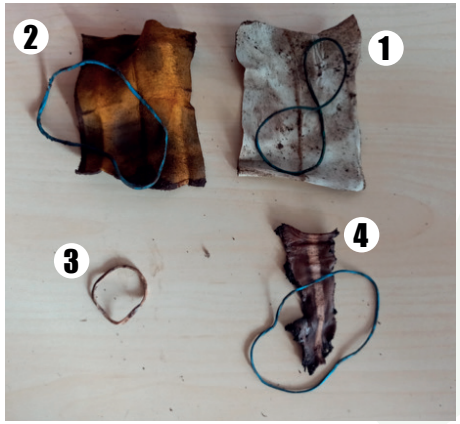
We left the buckets closed in ambient temperature conditions and constant indoor humidity for about 50 days.



STEP 3.

We checked the leather rolls and monitored their evolution in August-25th, 2020.

The leather tanned with **SERTAN WT** *(num 4)*, after being kept for 50 days in optimal composting conditions of humidity and temperature, did not show any skin residue or evidence of it, which indicates that the skin sample had been 100% decomposed.



Biodegradability test of sheepskin

Conclusions:

Samples number 3 and 4, show a high degradation in gardening compost. According to the products used in number 3 and 4:

- Tanning and retanning chemicals have no wastewater impact compared withe the products used in samples 1 and 2.
- The product's toxicity in leather is also very low.
- Biodegradation is as expected.
- Degraded products do not have an impact on the earth. They are compostable and no-toxic. The total environmental impact of skins tanned with **SERTAN WT** is much lower than the total environmental impact with leathers tanned with Chromium, Mineral salts or petrol derivates *(syntans, aldehydes, resins)*.

We conclude that leathers have been decomposed highly satisfactory and the environmental impact on tannery process, leather, compostability and ecotoxicity

makes the **SERTAN WT** the best choice.

Certifications

Test 2. Biodegradability of cowhide

STEP 1.

We sampled 5 bovine crust leathers, which had been tanned by different processes:

1. Tanned with chrome and retanned with standard market products.

2. Tanned and retanned with vegetable extracts and natural polymers.

3. Tanned with **SERTAN AL** and retanned with standard market products.

4. Tanned with **SERTAN WT** and retanned with standard market products

5. Tanned with **SERTAN WT** and retanned with vegetable with extracts and natural polymers.

STEP 2.

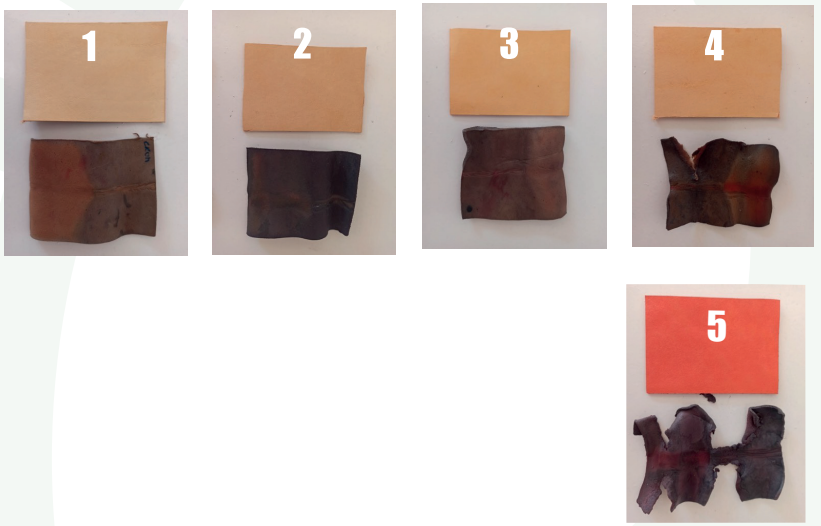
We buried the samples in compost substrate on September 2, 2020 and unearthed them on October 5, 2020.

STEP 3.

After 30-35 days the leather tanned with **SERTAN WT** begins to decompose. The decomposition of **EA-R-19170** *(sample no. 5)* is even greater, which leads us to affirm that within a year and under specific conditions of humidity and temperature, the skin will be totally decomposed

Conclusions:

The sample no. 5 ***(EA-R-19170)*** has been retanned with natural polymers to have the minimum impact on the environment, both in terms of the resulting leather and the products used throughout the process.



Test 3. Biodegradability of sheepskin leather

STEP 1.

We cut 35 pieces of sheepskin leather tanned with **SERTAN WT** and retanned with our standard eco-friendly process.

STEP 2.

We made rolls with the sheepskin cuttings and we introduced them inside a gardening compound at constant indoor humidity and temperature.

STEP 3.

We took out 3 samples per week. We kept and dried them in the same order as they were picked.

We started the test on 14 October 2020 and we finished it on 8 January 2021.

The test lasted for a total of 80 days.



Conclusions:

Every passing day with the sheepskin leather into the compost, it biodegraded increasingly.

Our tanning and retanning processes achieve excellent biodegradability and compostability since the sheepskins leather can disappear in 60-80 days.

Test 4. Determination of relative biodegradability of leather using aerobic microorganisms



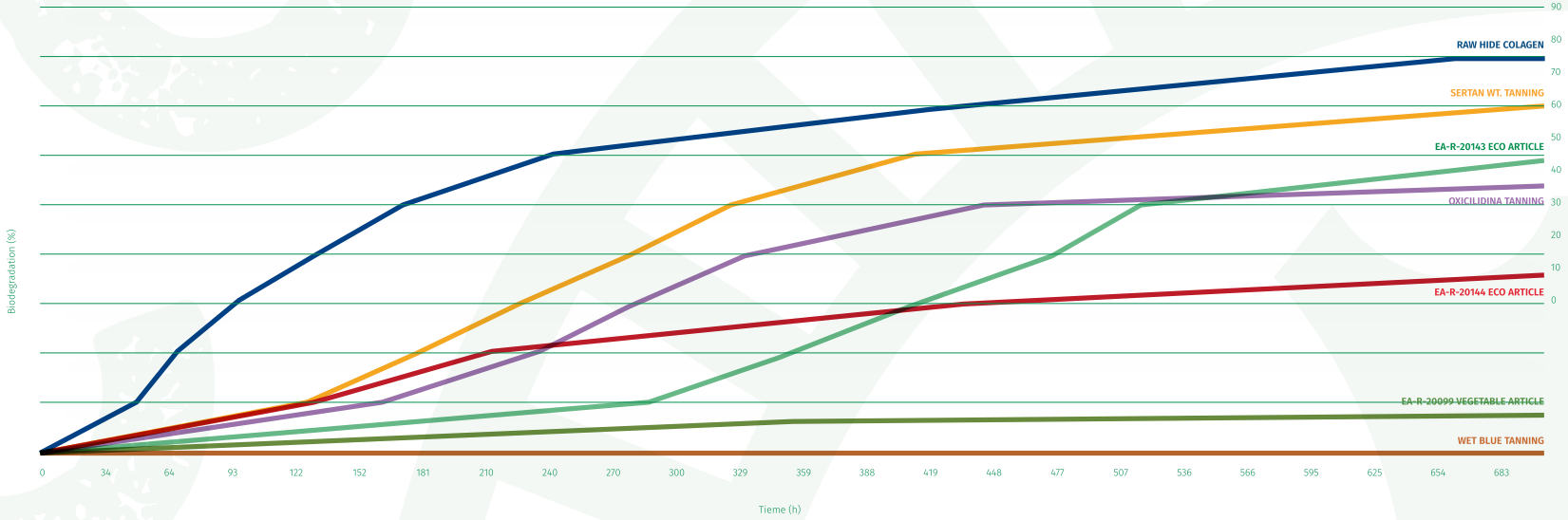
The test has been performed by **INESCOP**, which is a Centre for Technology and Innovation, founded in 1971 as a private and non-profit making association. With more than 45 years of experience, the Institute works to provide technology services, transfer knowledge and conduct research on general relevant topics for the footwear sector.

Test carried out according to UNE-EN ISO 20136 Leather - Determination of the degradability by microorganisms (ISO 20136: 2020).

Test 4.
Determination of relative biodegradability of leather using aerobic microorganisms

Accumulative average carbon dioxide evolution over time until plateau displayed graphically as lag-phase and slope (rate):

INESCOP TEST nº4



INESCOP FOOTWEAR TECHNOLOGY CENTRE
BIOdegradable
91.0% - in 29 DAYS
ISO 20136

- **RAW HIDE COLAGEN**
- **OXICILIDINA TANNING:** 3%
- **SERTAN WT. WET WHITE TANNING:** Tanning with SERTAN WT (8%). Non-retanned.
- **EA-R-20144 ARTICLE:** Tanned with SERTAN WT. Retanning with QUIMSER system: natural polymers, vegetable extracts and bio-fatliquors.
- **EA-R-20143 ARTICLE:** Tanned with SERTAN WT. Retanning with QUIMSER system: natural polymers, vegetable extracts and bio-fatliquors.
- **EA-R-20143 ARTICLE:** Tanned with SERTAN WT. Retanning with QUIMSER system: natural polymers, vegetable extracts and bio-fatliquors.
- **EA-R-20099 ARTICLE:** Tanned and retanning with vegetable extracts. We use natural producs and extracts.
- **WET BLUE TANNING:** Tanned with chrome (5-6%). Non-retanned.

Conclusions:

We concluded than **WET BLUE**, tanning with Chrome, no biodegradation is observed and no change is experienced.

We were surprised that the tanned leather with vegetal extracts experienced such as light biodegradation.

As we can see in the resultats, the tanned leather with our **QUIMSER** product **SERTAN WT** obtain a fast degradation. When we retanning it following the **EA-R-20143** and **EA-R-20144** processes, we experenced a totally acceptable degradation level, which translates into an excellent composting time.

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ISO 9001 BUREAU VERITAS Certification

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