

INFORME N°: C-21041678V2

ASUNTO: Determination of relative biodegradability percent of leather using aerobic microorganisms

SOLICITANTE: QUIMSER, S.A.

I. SAMPLES:

- a** Five samples with references "TANNING WET WHITE WW SERTAN WT", "EA-R-20144", "EA-R-20143", "EA-R-20099", "TANNING WET BLUE"._____

II. TESTS REQUESTED:

- DETERMINATION OF RELATIVE BIODEGRADABILITY PERCENT OF LEATHER USING AEROBIC MICROORGANISMS
- _____

III. RESULTS:

As specified in the applied standard, the following details are included in this test report:

a) Reference to the international standard used:

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

b) Information on the inoculum including source, date of collection, storage, handling and potential acclimation to test material:

Inoculum from the biological tank of Elda's municipal sewage treatment plant. The inoculum was obtained on **11/03/2021**, stored in a clean plastic bottle and transported at + 4 °C. Arrival at the final destination on **12/03/2021**. The water was decanted for solids removal.

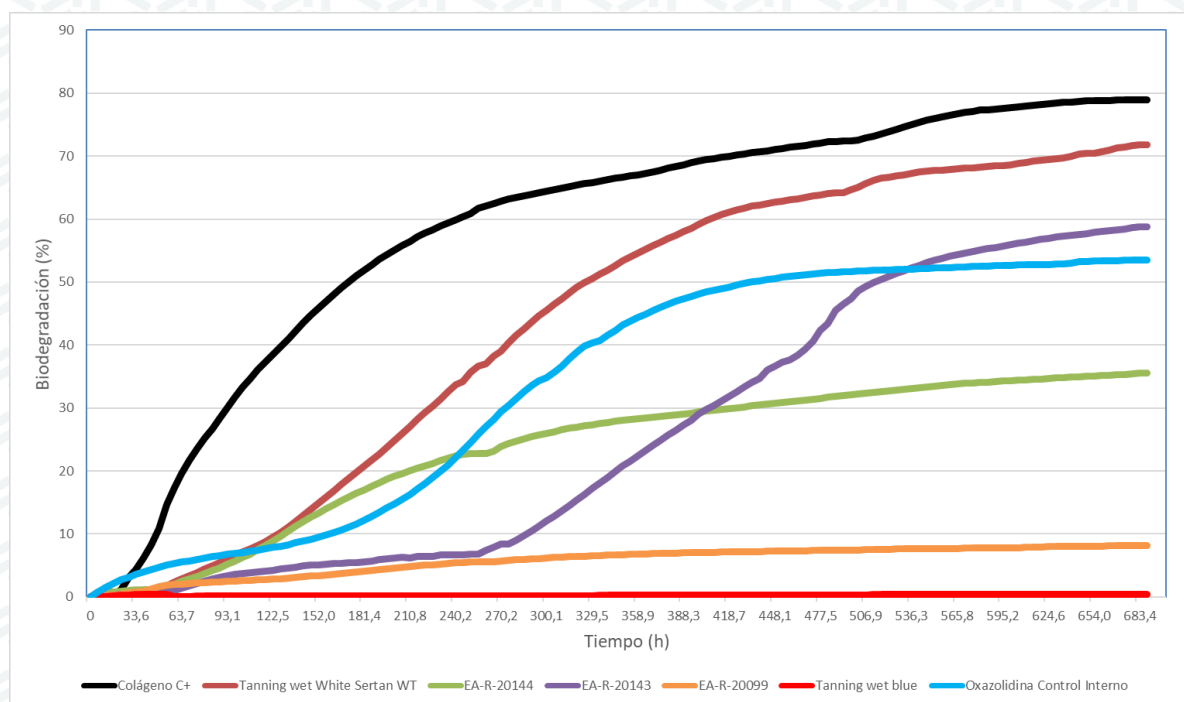
c) Carbon (C) content of the test material, both the collagen (positive control, C+) and the samples:

Materials	% Carbon ¹² C
Collagen (C+)	50.98
Tanning wet White Sertan WT	28.18
EA-R-20144	44.27
EA-R-20143	39.95
EA-R-20099	43.43
Tanning wet blue	41.08
Oxazolidine (INESCOP Control)	44.76

d) Percent of theoretical aerobic biodegradability of each sample tested, and the positive control material:

Sample	Amount of ¹² C in the sample (%)	Weight of the sample (g)	Theoretical maximum of ¹² C (g)	Theoretical maximum of CO ₂ (g)
Collagen (C+)	50.98	0.1804	0.3372	1.2365
Tanning wet White Sertan WT	28.18	0.1812	0.1872	0.6865
EA-R-20144	44.27	0.1815	0.2946	1.0803
EA-R-20143	39.95	0.1817	0.2662	0.9759
EA-R-20099	43.43	1.1806	1.8800	6.8934
Tanning wet blue	41.08	1.1806	1.7783	6.5204
Oxazolidine (INESCOP Control)	44.76	1.1809	1.9381	7.1063

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



f) % relative biodegradability of each sample:

PARAMETER	Determination of relative biodegradability percent of the sample using aerobic microorganisms	
	% Absolute biodegradation	% Relative biodegradability*
Collagen C+	78.9	100.0
Tanning wet White Sertan WT	71.8	91.0
EA-R-20144	35.5	45.0
EA-R-20143	58.7	74.4
EA-R-20099	8.1	10.3
Tanning wet blue	0.4	0.5
Oxazolidine (INESCOP Control)	53.5	67.8

* For the calculation of % relative biodegradability, the % absolute biodegradation of collagen obtained in the test is taken as 100%. The % relative biodegradation of each sample is calculated based on the value corresponding to 100% relative biodegradability of collagen.

IV. COMMENTS:

The relative biodegradability values obtained on the five leather samples with references “Tanning wet White Sertan WT”, “EA-R-20144”, “EA-R-20143”, “EA-R-20099” and “Tanning wet blue” were 91%, 45%, 74.4%, 10.3% and 0.5% respectively. INESCOP’s in-house control reached a biodegradation percent of 67.8%, which corresponds to the usual value obtained on this sample. Pure collagen was used as a positive control for this test. _____

NOTE: This report revision cancels and supersedes the English version of technical report C-21041678V1.

Elda, 20th April 2021.

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This is an English translation of the original report in Spanish of the same number

Laboratory prescriptions are available from the following link:

<http://www.inescop.com/PrescripcionesLaboratorio/index-en.htm>