

RECP Best Practices Catalogue

*Replacement of chromium based tanning with
Tanning by WET WHITE 'Chromium Free'*

Developed within the framework of MED TEST II



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



The SwitchMed Programme is
funded by the European Union

Best Practice - Replacement of chromium based tanning with Tanning by WET WHITE 'Chromium Free'

SECTOR:	Leather
BRANCH:	Tanning and dressing of leather
CATEGORY	Technology upgrade/Eco-innovation
APPLICABILITY	Process
COMPANY SIZE	60 Full-time employees



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Description of the Problem (Base Scenario):

Large amounts of chromium salts are used for leather tanning operations. This chemical is considered carcinogenic when Cr (VI) is transformed into Cr (III), and that because of several factors such as heat and mishandling of the product Moreover, this salt is an environmental pollutant and requires a complicated liquid effluent treatment operation.

Description of the Solution:



"Wet white" technology is not a true tanning process, but rather a pre-tanning process that is successful in bringing the hides to such a condition that they can be mechanically worked. The leathers are produced by combinations of synthetic tannins, plant-based tannins, glutar aldehydes and minerals, such as aluminium and zirconium.

A wide variety of different types of leather can be successfully produced using the wet white system, including automotive leathers, upholstery leather, leather garments and premium shoe leather.

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Economic Gains

Calculation per ton:

Chromium

8% chromium = 80 kg x € 1.2 = € 96

0.9% H₂SO₄ = 9 kg x € 0.3 = € 2.7

1.2% H₂CO₂ = 12 kg x € 0.28 = € 3.36

Or: € 102 /ton

Wet White

5% product = 50 kg x € 1.58 = € 80

That is a difference of + € 22 /ton

Total Gain: 22 x 3.5 x 300 = € 23,100 or 21.5%

Environmental Gains

- Eliminating the use of chromium by **100%**, which is equivalent to **84 tons**.

Health and Safety Impact

- Accidents and diseases related to the use of chromium in the workplace



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Capital Investments & Financial Indicators Investment in chemical products (oxazolidine, titanium ...) 5% = € 8,000
Time for Return on Investment ≤ 1 year

Supplier Information Imported

Other Aspects Conduct market research to commercialise the product

Implementation The company has already implemented this product.



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