SLOVENSKI STANDARD
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Usnje - Kemikalije - Kontrola kakovosti

Leather - Chemicals - Quality control

Leder - Chemikalien - Qualitätskontrolle

Cuir - Produits chimiques - Contrôle de la qualité

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English Version

Leather - Chemicals - Quality control

Cuir - Produits chimiques - Contrôle de la qualité

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 17848:2022) has been prepared by Technical Committee CEN/TC 289 “Leather”, the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

Introduction

By recovering a valuable organic material, tanneries have historically set themselves the goal of developing and managing its transformation into a high value-added material.

Chemicals, which are fundamental in the various processing stages in order to obtain rot-proof and long-lasting durable leather, provide the aesthetic and chemical-physical properties that characterize its final use. Their characteristics and performance need to be ensured by a quality constancy, which can be assessed through appropriate analysis and controls.

1 Scope

This guideline provides a list of recommended tests that can be used to assess the quality of chemicals used in tanning process.

This guideline applies to chemicals whose application has the same effect on leather, grouped in families.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1 Families of products

Chemicals whose application has the same effect on leather, grouped in families

3.1.1
bases
chemical species or molecular entity having an available pair of electrons capable of forming a covalent bond with a hydron (proton) or with the vacant orbital of some other species

3.1.2
acids
molecular entity or chemical species capable of donating a hydron (proton) or capable of forming a covalent bond with an electron pair

3.1.3
inorganic salts
inorganic chemical compound consisting of an assembly of cations and anion

3.1.4
organic salts (masking agent)
salified organic acids able to modify/mask the behaviour of chrome salts in coordinating with collagen

3.1.5
surfactants/degreasing agent in solvent
substances that have the property of lowering the surface tension of a liquid, facilitating the wettability of the surfaces or the miscibility between different liquids

3.1.6
enzymatic mixtures
based on enzymatic principles such as protease or lipase used in the skin maceration or degreasing phase

3.1.7
biocides
substances or mixtures capable of inhibiting or controlling fungal or bacterial growth in the leather process

3.1.8
antiwrinkle
substances or mixtures capable of attenuating, eliminating or preventing the formation of wrinkles on the grain of the leather

3.1.9
deliming agents
organic or inorganic substances or mixtures capable of removing lime by converting it into soluble salts

3.1.10
solvents
organic products based on aliphatic, aromatic, alcohol, glycols, ketones and esters

3.1.11
fatliquoring agents
products with a lubrifcant effect of the skin fibers, modifying the properties of softness and resistance

3.1.12
mineral tanning salts
inorganic products capable of binding to collagen increasing its hydrothermal stability and resistance to putrefaction

3.1.13
vegetable tannins
products of vegetable origin capable of binding to collagen increasing its hydrothermal stability and resistance to putrefaction

3.1.14
synthetic tanning agents (syntan)
industrial synthesis products capable of binding to collagen increasing its hydrothermal stability and resistance to putrefaction

3.1.15
organic tanning agents
organic products capable of binding to collagen increasing its hydrothermal stability and resistance to putrefaction

3.1.16
resins
synthetic product obtained by condensation of the same monomer (polymer) or different monomers (copolymer), used to modify the fibre structure during the wet processing stages

3.1.17
organic fillers
organic products capable of creating a filling effect

3.1.18
inorganic fillers
inorganic products capable of creating a filling effect

3.1.19
dyestuffs: anionic, cationic
coloured water soluble substance that chemically bonds to the substrate to which it is being applied

3.1.20
finishing resins
synthetic polymers able to make cross-linking reaction with other polymers or proteins

3.1.21
natural binders
substances of vegetable or animal origin, typically caseins and albumins, used for glazable finishing

3.1.22
finishing dyes
coloured substance in solvent without salts, with dyeing but not covering capabilities

3.1.23
finishing solvents and thinners
polar or apolar solvents used singly or mixed together

3.1.24
pigments
crystalline powders with covering capabilities able to give their colour to the substrate on which they are applied

3.1.25
compounds
mixture of several substances used in the finishing process

3.1.26
finishing auxiliaries
substances added in small doses to the finishing mixtures to modify their characteristics or facilitate the execution of specific steps in the finishing process

3.1.27
finishing waxes
natural or synthetic substances with low melting point characterized by a greasy and waxy feel

3.1.28
strain-levelling
additives able to modify viscosity and surface tension of a finishing mixture, improving its distension

3.1.29
touch modifiers
substance able to give the desired touch to the leather surface and it can be water emulsions, solvent solutions or dispersed into the binders

3.1.30
oils
lubricating substances of vegetable or mineral origin used as touch modifiers or to improve the grain flexibility

3.1.31
matting auxiliaries
crystalline substances of organic or inorganic nature with high refractive index usually used in aqueous emulsions or dispersed in lacquers and organic solvents to modify finishing brilliance

3.1.32
finishing fillers
inert and typically inorganic substances with high specific weight used to level and make uniform the surface of the leather

3.1.33
penetrating agents
surfactants or solvents used to improve the wettability, the penetration and the adhesion of the finishing mixture

3.1.34
waterproofing agents
substances that can be found under various compositions such as wax and paraffin mixtures, chromium stearates, fluorinated hydrocarbons, chloroparaffins, fatty acids, natural oils and fats

3.1.35
crosslinking agents
organic or inorganic substances capable of crosslinking polyfunctional polymers

3.2 Chemical's characteristics

3.2.1
visual appearance (colour, liquid, solid, etc.)
indicates how it appears visually indicating its physical appearance (liquid, powder), its colour and its consistency (fluid, pasty)

3.2.2
smell
characteristic of a product that can be recognized or noticed using the nose

3.2.3
active substance
active part of a substance or compound producing a chemical effect, capable of performing the declared application function

3.2.4
concentration
indicates the present percentage of the declared active principles

3.2.5
dry content
indicates the percentage of product after being subjected to 102 °C until a constant weight

3.2.6
titre
concentration (which is determined by the titration or instrumental analysis) of a constituent of a solution; it can be expressed in various ways: more commonly in grams of substance (element, compound) per litre of solution

3.2.7
pH
degree of acidity or basicity of an aqueous solution calculated as the negative value of the natural logarithm of the hydrogen content (expressed in grams) per litre of solution where the neutral pH, that of water, which has a value of 7 (lower values indicate the acid solutions, higher values than basic ones)

3.2.8
specific weight
ratio of the weight of a product and its volume

3.2.9
density
ratio of the mass of a product and its volume

3.2.10
viscosity
measure of the fluid resistance to deformation at a given rate and is conceptualized as quantifying the internal frictional force that arises between adjacent layers of fluid that are in relative motion

3.2.11
solubility
miscibility of a solute in a solvent under certain conditions of temperature and pressure; the maximum quantity of a solute which in these conditions dissolves in a given quantity of solvent, forming a single phase

3.2.12
yield
ratio between the concentration of a sample and that of a standard sample, which can be determined either by dyeing on a suitable support (leather, paper, etc.) or spectrophotometrically, by calculating the ratio of the maximum absorbance of a sample and the same value measured on a standard sample

3.2.13
enzymatic units
amount of an enzyme, which degrades a given amount of substrate under given conditions

3.2.14
free acidity of fatliquors
amount of free fatty acids in the product, expressed as percent of oleic acid (equivalent) in the fatliquor or as mg of potassium hydroxide necessary to neutralize 1 g of fatliquor

3.2.15
basicity of a mineral tanning agent
ratio between the number of hydroxyl groups bound to a metal atom (i.e. Cr, Al, Zr, etc.) and the total number of hydroxyl groups which can be bound by it. It is expressed by percent or in twelfths

3.2.16
tannins/non-tannins
ratio obtained in tannin analysis performed with the “filter bell skin powder method” according to EN ISO 14088

3.2.17
insoluble in vegetable tannins
percentage of insoluble substance in water, according to EN ISO 14088