

TECHNICAL
and PRODUCT
SPECIFICATIONS



Mimosa

For the tanning and retanning of beautiful leather



TECHNICAL DATA

Chemical Composition



Vegetable tannins are natural products contained in the bark, wood and pods of trees. Vegetable tannins are composed of polymeric polyphenolic molecules covering a wide range of molecular mass ranging from 500 to 3000 units.

The tanning action of polyphenols is dependent on the molecular mass and the number of phenolic - OH hydroxyl groups. Mimosa tannins are on average about 1250 units and generally have a good tanning action.

Vegetable tannins are classified according to their chemical structure:

- Pyrogallol or hydrolysable tannins, such as Chestnut and Myrabolam extract.
- Catechol or condensed tannins, such as Mimosa (or Wattle) and Quebracho extract.

Extraction Process



Mimosa extract is obtained from the bark of Black Wattle (*Acacia mearnsii*) trees grown in plantations. It takes 7 to 10 years for the tree to grow large enough to be ready for harvesting and stripping of the bark, which is then chipped and extracted under controlled industrial conditions to extract the optimum amount of tannin with the lightest colour range. Mimosa or wattle bark contains about 30% tannin. The wood has other industrial uses.

Wattle bark is best processed immediately after stripping to deliver a light coloured extract; the older the bark, the darker the colour. Harvesting and stripping is seasonal, and largely depends on rainfall patterns in the country where it is grown.

The chopped bark is extracted, using a counter current principle, in autoclaves under pressure at temperatures above 100 degrees celsius. The liquid extract is then concentrated by evaporation and either poured into hessian bags, in which it slowly solidifies and becomes a solid, or the hot viscous concentrated liquid is spray dried as powder and the powder placed into bags, which are stitched closed and carefully stacked.

Mimosa extract has the following properties:

- A pH value of 4,6 - 4,8.
- A low concentration of salts and acids.
- A rapid rate of penetration through the pelt.
- A good stability to enzyme action, which arises from yeast or moulds which occur in nature and could cause loss of tannin, particularly in pit tannages.
- A high solubility, low formation of sludge in pits.
- Mimosa extract gives good fixation of tannin to collagen.
- Mimosa extract produces a pleasant characteristic light pink/brown colour, much demanded by customers.

Mimosa tannin is stable against bacterial or fungal attack. At higher concentrations and lower pH values, they polymerise forming small amounts of a reddish brown coloured viscous sludge called “reds” or “phlobaphenes”.

These give the extra weight and solidity to heavy leather such as sole leather if they are deposited inside the leather itself. Condensed tannins have the tendency to oxidise and darken on exposure to air and light. Mimosa extracts are mostly used without any chemical treatment, but there are several products produced for special tanning purposes and these are chemically treated.

NTE Mimosa extracts are also dedusted to prevent the spread of dust in the air when handled, which would normally pollute the working atmosphere and make it unpleasant for the operators.

Mimosa extract is a very versatile tanning compound and can be used for tannage on its own or in combination with other tanning compounds. There are many specialty types of leather produced by combining Mimosa extract with other chemicals in pretannages or retannages.

Mimosa extract is used mainly in the tannage of heavy leathers, such as sole, saddlery, insole, case, belt, industrial leathers, or for light leather manufacture e.g. upholstery, garment, lining, shoe upper leathers etc.

Mimosa extract is particularly suitable for modern tannages and is recommended for full vegetable tanning of hides or skins (for heavy and light leather) in drums, pits, paddles or processors and for retanning of chrome tanned leathers.

Figure 1 gives a diagrammatic breakdown of the various specialty Mimosa products. Note that as the molecular size decreases, the rate of tannin penetration increases.

Table 1 lists the typical analytical results of the Mimosa products. The very low colour readings of Mimosa GS, FS, WS and RG are noteworthy as are the low salt and ash contents of Solid Mimosa and Mimosa ME / OP powder.

Figure 1

POWDERED MIMOSA PRODUCTS

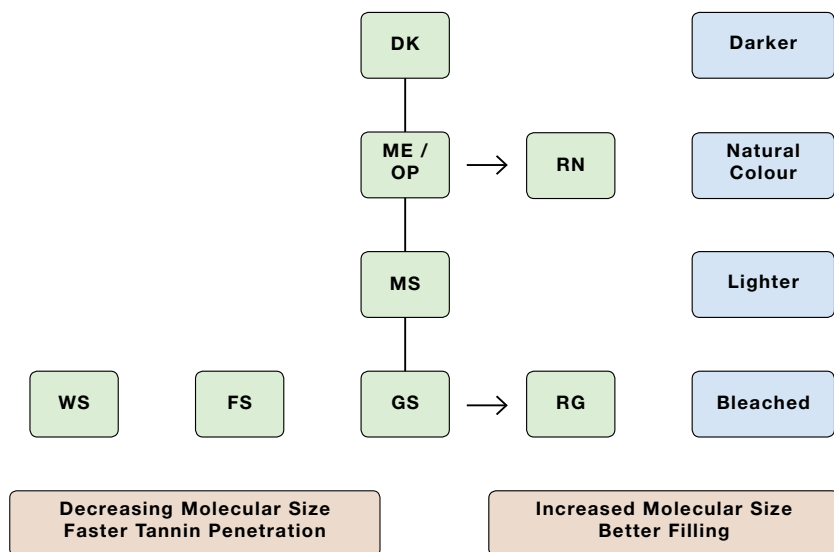


Table 1

TYPICAL ANALYTICAL RESULTS (SLTC SHAKE METHOD) OF MIMOSA PRODUCTS

	SOLID	ME / OP	GOLDEN	GS	FS	MS	WS	RG	RN	DK	CR
Tannin (%)	62,5	68,3	67,5	67,5	67,0	68,0	59,0	67,0	68,0	68,5	55,0
Non-Tannin (%)	21,3	25,0	26,1	26,0	26,9	25,5	34,9	25,5	24,5	25,5	38,0
Insolubles (%)	0,2	0,2	0,4	0,2	0,1	0,2	0,1	1,0	1,0	0,5	1,0
Moisture (%)	16,0	6,5	6,0	6,3	6,0	6,3	6,0	6,5	6,5	5,5	6,0
STANDARD LOVIBOND TINTOMETER TEST											
Red	1,4	1,3	1,4	0,4	0,5	0,8	0,5	0,8	2,4	6,0	
Yellow	2,8	2,6	4,5	0,8	0,9	1,6	0,9	1,6	7,5	12,0	
pH of 50° BK	4,9	4,7	4,5	4,7	4,6	4,4	4,4	4,4	4,5	4,6	2,8
Acid (mg.eq./l)	30	30		30							
Salt (mg.eq./l)	60	60		130							
Ash (%)	1,2	1,2	2,0	2,5	3,8	1,9	7,0	3,0	1,5	1,3	26,0
Cr₂O₃(%)											6,5

Mimosa Tanning Principles



Tanning is essentially a two-stage process, although the two stages are not completely separate, in fact they proceed concurrently. The first stage consists of the diffusion of the tannins into the hide by means of the spaces or capillaries between the fibres and the fibre bundles and more minutely into the spaces between the individual fibrils comprising the fibres. The second stage is the combination of the vegetable tannins with the collagen, the protein of which the hide fibres is mainly composed.

It is therefore necessary to consider first the factors affecting the diffusion of tannins into hide since it is obvious that tannin cannot combine with collagen fibres at a given point in the hide structure until it has diffused or penetrated to that point.

The factors affecting diffusion are:

- (i) Concentration of tan liquor
- (ii) Time
- (iii) Temperature
- (iv) Acidity
- (v) Neutral salt content
- (vi) Particle size
- (vii) Mechanical action

(i) With increasing concentration of tan liquor, the tendency for a tan liquor to penetrate hide increases, provided that the astringency does not also increase and cause case hardening which may restrict the penetration. Thus it is not always possible to increase the rate of penetration by putting raw pelt into strong tan liquors. If, however, a piece of partially tanned hide is moved from one liquor to a more concentrated liquor the penetration of the tannin will be accelerated.

(ii) The time a hide is immersed in a tan liquor will determine the amount of tan that has diffused into the leather. Thus it is obvious that the longer a piece of hide is left in a given tan liquor the greater will be the diffusion of tannin into the hide, until the system reaches equilibrium.

(iii) Increase in temperature will increase the rate of diffusion of a tan liquor into the hide. This is partly due to the fact that the viscosity of a tan liquor decreases with rise in temperature. In addition, the mobility of the tannin particles is increased with an increase in temperature.

(iv) Acidity is one of the most important factors affecting the diffusion of tan liquors into the hide. The pH of a system affects diffusion in various ways. Firstly, increasing the acidity increases the tendency of hide fibres to plump,

and with increased plumping of the hide fibres, the spaces between the fibres decrease and less tan liquor diffuses into the hide. Secondly, with a decrease in acidity, especially below pH 3.5, the tendency for tannin to combine with collagen increases appreciably. Consequently, in the low pH range, the diffusion or penetration of tan into hide is further retarded because of the combination taking place between the tannin and the collagen fibres. This reduces the spaces between the fibres in addition to restricting the swelling of the fibres.

The type of acid present in tan liquors is also important since a greater quantity of the weaker acids is necessary to achieve a given pH than when mineral acids are used. Thus there is a bigger reserve of acid in tan liquors acidified with weak acids (e.g. formic or lactic). It has been shown that the greater the quantity of acid present in a tan liquor at a particular pH, the slower the penetration of the tan into the hide.

(v) The presence of neutral salts tends to suppress the plumping of collagen fibres in tan liquors and the type and amount of salt in the tan liquor will influence the extent to which the swelling is reduced. It will be apparent therefore that neutral salts will help to increase the rate of penetration because reduction in plumping will enlarge the spaces between the fibres and fibrils.

(vi) Since the rate of diffusion of the particles in a tan liquor is affected by the size of the openings between the fibres, it is also affected by the size of the tannin particles. Vegetable tannins are complex mixtures of organic compounds which are polymerised to varying degrees and therefore contain particles of varying size. Thus tannins with a small particle size will diffuse into hide more rapidly. Certain chemical treatments e.g. bisulphiting, increases the solubility of some tannins and increases the rate of penetration.

(vii) Mechanical action increases the rate of penetration because the flexing action causes physical movement of the liquid between the fibres and is effective in carrying tan to the inner layers of the hide. This is not a diffusion process but in practice the effect is the same.

The factors affecting combination are:

- (i) Concentration of tan liquor
- (ii) Time
- (iii) Temperature
- (iv) Acidity or pH
- (v) Neutral salt content
- (vi) Particle size

It is obvious from the list that the factors which affect penetration also affect the combination of the tannin with the hide.

(i) The concentration of the tan liquor is important because more tannin will be fixed by the hide in a given time from a strong liquor than from a weak liquor.

(ii) The combination between tannin and collagen is a physiochemical reaction which proceeds with time, the longer the reaction or tanning is allowed to proceed the greater the fixation of the tannin by the collagen fibres.

(iii) Since reaction rate is increased with temperature, the amount of tannin that will combine with a given weight of hide substance from a tan liquor under standard conditions is increased by a rise in temperature.

(iv) Acidity plays an important part in tanning because although tan fixation occurs over the whole range of pH 1 to 8, the greatest fixation is in the range 2 to 3. This is because reactive groups are made more active and accessible at these pH levels.

(v) The type of acid is again important when dealing with fixation or combination. A tan liquor acidified to a given pH with a greater quantity of a weak acid will give a greater tan fixation than a similar tan liquor acidified to the same pH with a smaller quantity of strong acid.

(vi) The presence of neutral salt tends to reduce the fixation of tannin. This is probably because the swelling of the fibres is reduced and reactive sites in the collagen fibres are not so readily accessible. Thus neutral salt will tend to give rather empty leather, particularly if present in excessive quantities.

(vii) The small particle sized tannins tend to be more difficult to fix.

In summary

The condition of the hides and tan liquor must be such that the tans can enter the spaces between the fibres with reasonable ease throughout the entire thickness of the hide. Having entered the hide the tans gradually combine with the collagen.

Although this combination takes place after the tans have entered the hide, both processes of combination and penetration proceed simultaneously. Suitable choice of conditions at the various stages of tanning will give the necessary penetration and tan fixing effects.

PRODUCT
DATA



Mimosa **ME**



Mimosa ME is a natural mimosa extract, low in salts, insolubles and sludge formation. An optimal solution for vegetable tanned leathers including sole, strap and case. Particularly suitable for retanning chrome leather giving excellent fullness and emboss retention.

TANNINS	NON-TANNINS
72.3	21.0
INSOLUBLES	MOISTURE
0.2	6.5
RED 1.3	
YELLOW 2.6	
PH@50BKR 4.7	



Mimosa ME Application

Vegetable Tannage:

- Mimosa ME can be used alone for the tannage of sole leather. Depending on the substance and compaction up to 40% of Mimosa ME can be used.
- For the tanning of strap and case leathers between 10% and 20% Mimosa ME can be used. The Mimosa ME can also be used with other Mimosa products such as Mimosa WS, Mimosa FS and Mimosa RG.

Re-tannage of Chrome Leather:

- The use of between 5% and 10% Mimosa ME is recommended.
- For heavy vegetable retannage on chrome leather, between 10% to 20% Mimosa ME is recommended, depending on the desired feel of the leather.

Mimosa **ELEPHANT GS**



Mimosa Elephant GS is a very light coloured de-dusted powder produced from specially selected fresh bark. The extract is treated to lighten the colour. The pale beige that results is ideal for vegetable tannage or chrome retannage where a particularly pale shade is required.

TANNINS	NON-TANNINS
71.0	22.5
INSOLUBLES	MOISTURE
0.2	6.3
RED 0.4	
YELLOW 0.8	
PH@50BKR 4.7	



Mimosa Elephant GS Application

- Mimosa Elephant GS is not recommended for pit tannages. However, it is ideally suited for full vegetable tanning where a very light coloured leather is required. Up to 30% Mimosa Elephant GS can be used. For the tannage of E.I. skins 25% Mimosa Elephant GS is used. Mimosa Elephant GS can be used in conjunction with other Mimosa products like Mimosa ME or Mimosa RG to adjust the shade of the leather.
- For retannage on wet blue between 5% and 10% Mimosa Elephant GS is recommended.

Mimosa **FS**



Mimosa FS is an exceptionally light coloured, dedusted Mimosa powder, treated to be less astringent, highly soluble and having improved light-fastness. Mimosa FS delivers rapid tannin penetration, light shades and smooth grain. It is especially suited for the retannage of chrome leathers.

TANNINS	NON-TANNINS
67.0	26.9
INSOLUBLES	MOISTURE
0.1	6.0
RED 0.5	
YELLOW 0.9	
PH@50BKR 4.6	



Mimosa FS Application

- Mimosa FS is not recommended for pit tanning. However, it is ideal for drum tanning of full vegetable tanned leathers where it gives a light colour and pleasant feel. Up to 20% Mimosa FS can be used for full veg strap, case or bag leathers. Mimosa FS can also be used in conjunction with other Mimosa products such as Mimosa WS, Mimosa ME and Mimosa RG.
- For retannage of chrome leather between 5% and 10% Mimosa FS is recommended.
- For heavy vegetable retannage on chrome leather up to 15% Mimosa FS is recommended.

Mimosa **Osprey**



Mimosa Osprey is a natural Mimosa extract, low in salts, insolubles and sludge formation. An optimal solution for vegetable tanned leathers, including sole, strap and case. Mimosa Osprey is particularly suitable for retaining chrome leather, giving excellent fullness and emboss retention.

TANNINS	NON-TANNINS
72.3	21.0
INSOLUBLES	MOISTURE
0.2	6.5
RED 1.3	
YELLOW 2.6	
PH@50BKR 4.7	



Mimosa Osprey Application

Vegetable Tannage:

- Mimosa Osprey can be used alone for the tannage of sole leather. Depending on the substance and compaction up to 40% of Mimosa Osprey can be used.
- For the tanning of strap and case leathers between 10% and 20% Mimosa Osprey can be used. Mimosa Osprey can also be used in conjunction with other Mimosa products like Mimosa WS, Mimosa FS and Mimosa RG.

Re-tannage of Chrome Leather:

- The use of between 5% and 10% Mimosa Osprey is recommended.
- For heavy vegetable retannage on chrome leather, between 10% to 20% Mimosa Osprey is recommended, depending on the desired feel of the leather.

Mimosa **RG**



Mimosa RG is a unique extract which has been specially modified to increase its molecular size. Mimosa RG has exceptional filling properties, delivering a leather with fuller flanks and tighter break. Mimosa RG is highly recommended for both vegetable tannages and retannages of chrome leather, where emptier or looser raw material is used. When used in the sole leather process, Mimosa RG increases yields.

TANNINS	NON-TANNINS
67.0	25.5
INSOLUBLES	MOISTURE
1.0	6.5
RED 0.8	
YELLOW 1.6	
PH@50BKR 4.4	



Mimosa RG Application

- For vegetable tannage of sole, strap, case, harness and bridle leathers, between 10% and 15% Mimosa RG can be used in the re-tanning process. Mimosa RG can also be used in conjunction with other Mimosa products such as Mimosa WS, Mimosa FS and Mimosa ME in the tanning process.
- For retannage of chrome leather between 5% and 10% Mimosa RG is recommended.
- For heavy vegetable retannage on chrome leather up to 15% Mimosa RG is recommended.

Mimosa **MS**



Mimosa MS delivers a lighter colour than the standard Mimosa ME product but the same fullness and firmness. Low in organic salts, Mimosa MS is not only ideal for closed pit tanning systems, but also for drum tanning. When used for retanning of chrome leathers, the negligible bleaching of Mimosa MS gives good level dyeing together with the known filling, smooth grain and print retention.

TANNINS	NON-TANNINS
69.4	23.7
INSOLUBLES	MOISTURE
1.7	4.4
RED 0.9	
YELLOW 1.6	
PH@50BKR 4.4	



Mimosa MS Application

- For vegetable tannage of sole, strap and case between 10% and 20% Mimosa MS can be used in conjunction with other Mimosa products such as Mimosa WS, Mimosa ME and Mimosa RG. Mimosa MS is low in organic salts and is therefore ideal for closed pit tanning systems.
- For retannage of chrome leather between 5% and 10% Mimosa MS is recommended.

Mimosa **WS**



This is a light coloured dedusted powder modified to achieve minimum astringency and thus quick tannin penetration. Mimosa WS is a suitable pretanning agent for vegetable tanning.

TANNINS	NON-TANNINS
59.0	34.9
INSOLUBLES	MOISTURE
0.1	6.0
RED 0.5	
YELLOW 0.9	
PH@50BKR 4.4	



Mimosa WS Application

- For pre-tanning of vegetable tanned leathers 5% Mimosa WS is recommended 30mins before the main tan addition.
- Mimosa WS is also recommended for softee / nappa leathers where it gives good fullness without impacting on the softness of the leather. For this application 5% is recommended in the re-tannage.

Mimosa **DK**



Mimosa DK is a dark coloured extract that gives the good filling properties of standard Mimosa ME. In vegetable tanning Mimosa DK produces a leather with a deeper brown colour. In the retanning of chrome leathers Mimosa DK is ideal for darker coloured leathers whilst maintaining all the characteristics of Mimosa ME.

TANNINS	NON-TANNINS
68.0	25.5
INSOLUBLES	MOISTURE
0.5	5.5
RED 10.0	
YELLOW 20.0	
PH@50BKR 4.6	



Mimosa DK Application

- For vegetable tannage of sole, strap, case, harness and bridle leathers and depending on the colour required between 10% and 20% Mimosa DK can be used in conjunction with other Mimosa products such as Mimosa ME and Mimosa RG.
- For retannage of chrome leather between 5% and 15% Mimosa DK is recommended.
- For heavy vegetable retannage on chrome leather up to 15% Mimosa DK is recommended.

Mimosa **RN**



Mimosa RN has similar properties to Mimosa RG, with a slightly larger molecular size, delivering a natural yellow/brown colour. Mimosa RN enhances filling properties, delivering firm, full flanked leather. Recommended for drum tannage or retannage, Mimosa RN increases yields when added to sole leather filling operations. It is recommended to increase the running time by at least 20% to ensure penetration for the ideal end result.

TANNINS	NON-TANNINS
68.0	24.5
INSOLUBLES	MOISTURE
1.0	6.5
RED 2.4	
YELLOW 7.5	
PH@50BKR 4.4	



Mimosa RN Application

- For vegetable tannage of sole, strap, case, harness and bridle leathers, between 10% and 15% Mimosa RN can be used in the re-tanning process. Mimosa RN can also be used in conjunction with other Mimosa products such as Mimosa WS, Mimosa FS and Mimosa ME in the tanning process.
- For retannage of chrome leather between 5% and 10% Mimosa RN is recommended.
- For heavy vegetable retannage on chrome leather up to 15% Mimosa RN is recommended.

Mimosa **CR**



Mimosa CR is a combination of a modified wattle extract and a chrome salt that delivers a water soluble veg/chrome powder ideal for grain tightening retannages with good fullness and softness. Leathers retanned with Mimosa CR exhibit better filling and tightness with smoother grains leading to improved buffing properties for a nubuck effect.

TANNINS	NON-TANNINS
55.0	38.0
INSOLUBLES	MOISTURE
1.0	6.0
Cr ₂ O ₃ % 6.5	
PH@50BKR 2.8	



Mimosa CR Application

- Mimosa CR has an inherent low pH and can be used prior to neutralisation. Up to 5% can be used and helps give leathers a smooth, tight even grain.
- Mimosa CR can also be used after dyeing and fatliquoring where it helps with the fixation process. Depending on the type of leather and required feel, between 5% and 10% of Mimosa CR can be used at this stage.

Mimtan **AT1**



Mimtan AT1 is a specially modified extract that reduces astringency to an absolute minimum. Mimtan AT1 exhibits excellent dispersion properties and is ideal for use in the distribution and penetration of tanning and retanning agents. Mimtan AT1 also exhibits vastly improved light-fastness and heat resistant properties and is recommended for use in the manufacture of automotive and upholstery leathers.

TANNINS 58.0	NON-TANNINS 35.2
INSOLUBLES 0.2	MOISTURE 6.6
RED 0.8	
YELLOW 1.4	
PH@50BKR 4.7	



Mimtan AT1 Application

- For improved penetration of chemicals and dyes, between 2% and 6% of Mimtan AT1 is recommended after neutralisation.
- For wet white upholstery between 10 and 20% Mimtan AT1 is recommended after pre-tanning.
- For retanning of wet blue upholstery between 4% and 10% Mimtan AT1 is recommended.

Mimtan **GT**



Mimtan GT is specially treated to deliver a golden colour to veg tanned leather. Properties are otherwise identical to the Mimosa ME product.

TANNINS 71.5	NON-TANNINS 22.4
INSOLUBLES 0.4	MOISTURE 6.0
RED 1.4	
YELLOW 4.5	
PH@50BKR 4.5	



Mimtan GT Application

- Mimtan GT is not recommended for pit tanning. However, it can be used after pit tanning to give a pleasant golden colour to sole, strap or bag leathers where up to 20% can be added to the drum. For a full vegetable tannage of Mimtan GT, between 20% and 30% is recommended depending on the article being produced.
- For retannage on wet blue between 5% and 10% Mimtan GT is recommended.

Mimosa **ELEPHANT SOLID**



Mimosa Elephant Solid is a natural soluble extract, free of any additives and chemicals. It is easily soluble in water and ideal for the manufacture of sole, strap, harness, case and other vegetable tanned leathers. It is particularly suitable for pit tannages but can also be crushed and used in drums.

TANNINS	NON-TANNINS
66.0	17.8

INSOLUBLES	MOISTURE
0.2	16.0

RED	1.4
YELLOW	2.8
PH@50BKR	4.9



Mimosa ELEPHANT SOLID Application

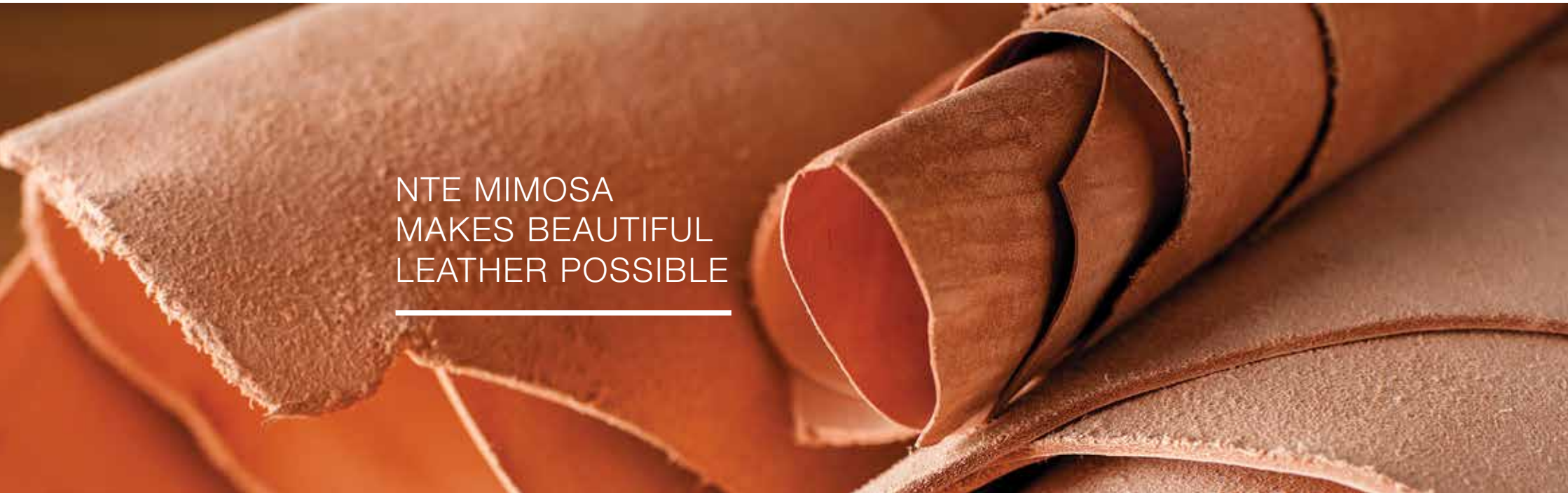
Pit Tanning:

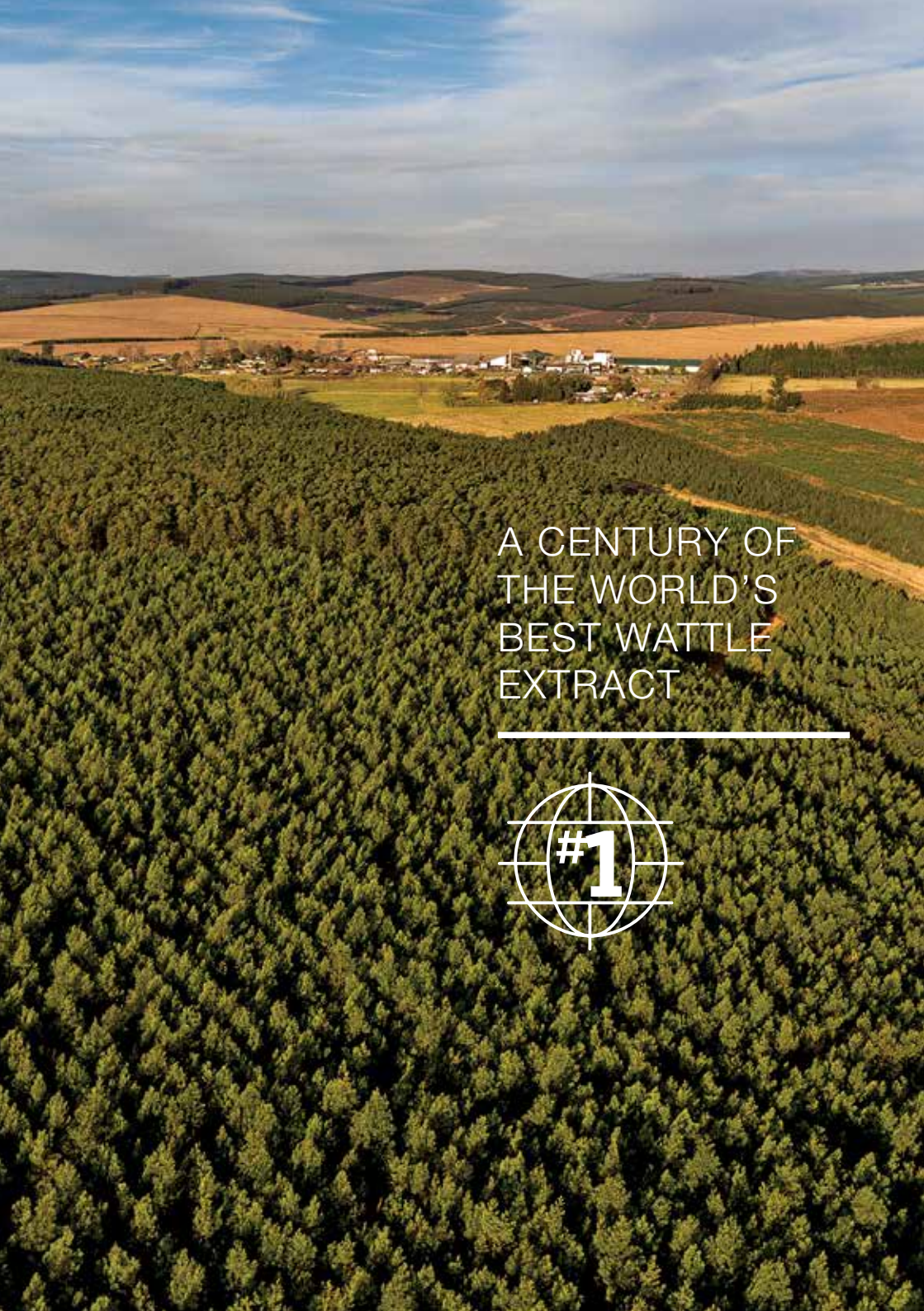
- Mimosa Elephant Solid is ideal for use in traditional pit tannages. Pit tannages are used mainly for tanning sole, harness and bridle leathers. Mimosa Elephant Solid can be dissolved to make up the initial liquor for the pit. It is also recommended to hang a bag of Mimosa Elephant Solid in the pit during tannage. Mimosa Elephant Solid slowly dissolves thereby maintaining the level of %Tans. Mimosa Elephant Solid is supplied in traditional hessian bags which allows for the Mimosa Elephant Solid to easily dissolve and dissipate.

Drum Tanning:

- Mimosa Elephant Solid can be used in drum tanning where it is crushed and added to the drum in the desired quantity.

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