

# The Application of Lubritan GXL

# Lubritan GXL

- ✓ New version of Lubritan GX
- ✓ Same polymer composition as the GX
  - ***Different process used to make Lubritan GXL***
  - ***Hence the name change required GX > GXL***
- ✓ **Same effect on leather properties**

# Lubritan GXL

Single product test -12% of Product

	Lubritan GX	Lubritan GXL
Dyeing	Similar	Similar
Tightness	Similar	Similar
Softness	Slightly firmer (3.5mm)	slightly softer (4.0mm)
Fullness	Similar (1.61mm)	Similar (1.65mm)
Tongue Tear (N/mm)	42.55	43.56
Tensile (N/mm <sup>2</sup> )	32.88	32.43

# Lubritan GXL

Test in Formulation with retanning agents and fatliquor - 6% of Product with Fatliquor

	Lubritan GX	Lubritan GXL
Dyeing	Very Similar	Very Similar
Tightness	Very Similar	Very Similar
Softness	Very Similar	Very Similar
BLC temper (mm)	3.5	3.4
Fullness	Very Similar	Very Similar
Thickness (mm)	1.92	1.95
Tongue Tear (N/mm)	36.04	33.39
Tensile (N/mm <sup>2</sup> )	24.1	24.1

# Lubritan GXL

- Application Field

- ✓ Improve tear strength
- ✓ Automotive leather – High benefit for Low fogging, fastness property
- ✓ Shoe Upper – Tightness and Softness
- ✓ Upholstery – Softness and evenness
- ✓ Nubuck and Split suede – Easy buffing and short/fine nap
- ✓ Washable leather - High exhaustion and fixation
- ✓ White Leather - Light and heat fastness
- ✓ Chrome Free – Tight and soft

# Lubritan GXL

- Application Parameters

- ✓ pH

- Any pH above 4.4, below need to be tested in special situations,

- ✓ Stage

- Use after neutralization, after dyeing, with fatliquor and after fatliquor.

- ✓ Application level

- 3-12%

# Lubritan GXL

- Application Parameters

The key is to get the full penetration and even distribution of Lubritan GXL in the leather

- ✓ Avoid use direct on high cationic charged substance (Test before use when you want to)
- ✓ Use after Leukotans/other retanning agents
- ✓ Use with oils

# Lubritan GXL

- Application Parameters - Stage

Stock	Seton Blue 1.1mm		X1	X2	X3	X4
		Wt. of leather (Kgs)	1.472	1.646	1.310	1.294
Operation	%	Chemicals	Time & Check	Chemical Weight (g)		
		Together for wet back and Neutralize		5.722		
		water @ 40C	15'			
	100	water @ 40C				
		1.0 Tanigan PAK				
		1.0 sodium acetate		57.2		
		0.5 sodium bicarbonate	60'	28.6		
			pH4.93,			
	100	water @40C			2.604	
	3.0	Leukotan ER-N	20'	44.2	49.4	78.1
		6.0 Lubritan GXL	45'	88.3		
	3.0	Retigan R7		44.2	49.4	78.1
	3.0	Tanigan OS		44.2	49.4	78.1
	3.0	Mimosa		44.2	49.4	78.1
	2.0	Dye CGG	45'	29.4	32.9	52.1
		6.0 Lubritan GXL	45'		98.8	
	100	water @ 60C	Control Drum 50C			Lea. And Float, to another drum
	0.75	Formic Acid	20'	11.0	12.3	9.8
			pH	3.76	3.75	3.63
	100	water @ 50C				
	6.0	Atlasol 178		88	99	79
		6.0 Lubritan GXL	45'			79
	0.5	Formic Acid	20'	73.6	82.3	65.5
	0.5	Formic Acid				64.7
Wash:		Open door @ 35° C.	Run 15'	3.26	3.24	3.30
						3.64

# Lubritan GXL

- Application Parameters

	After Leukotan	After all the retan	with fatliquor
Tightness	least tight	tight	<b>tightest</b>
Temper	4.1	4.0	<b>4.2</b>
Fullness	1.35	<b>1.39</b>	1.35
color	light	<b>darkest</b>	dark
tear(I) (N/mm)	31.3	31.0	31.0
tear(O) (N/mm)	42.6	41.8	<b>47.6</b>
Tensile (N/mm <sup>2</sup> )	22.4	19.8	21.0

More tests show that after all the ratanning and dyes before acid fix, it get the best benefits of Tear strength and inner softness.

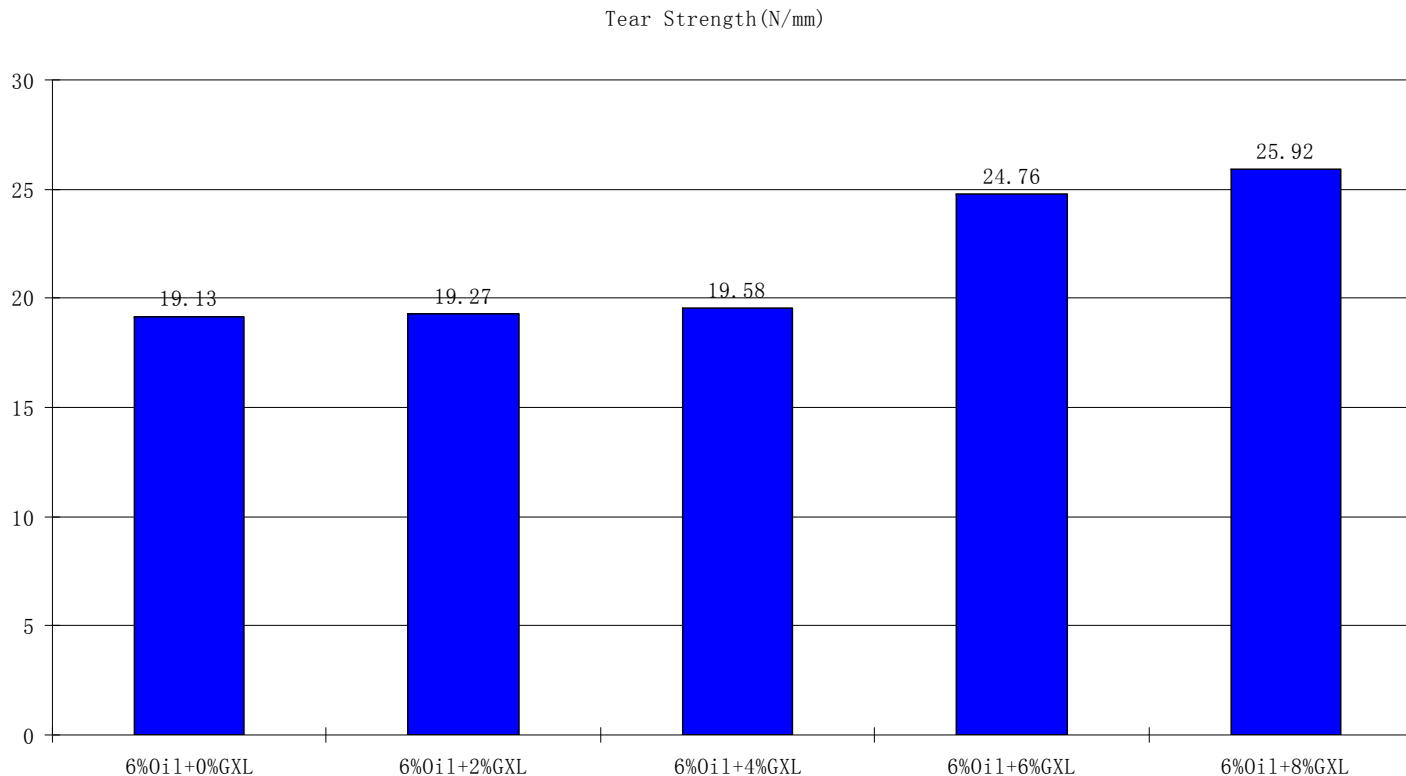
# Lubritan GXL

- Application Parameters - % to Strength

Wet Back		water @ 40C	15', Drain/Wash/Refloat
Neutralzie	100	water @ 40C	
	2.0	sodium acetate	
	0.5	sodium bicarbonate	45' pH4.8, Drain/Wash/Refloat
Retan/Dye	100	water @40C	
	3.0	Leukotan ER-N	20'
	3.0	Retigan R7	
	3.0	Tanigan OS	
	3.0	Mimosa	
	3.0	Dye CGG	60'
	100	water @ 60C	
	0.75	Formic Acid	20', pH3.91, Drain/Light wash
Fatliquor	100	water @ 50C	
	6.0	Atlasol 178	
	<b>0~8.0</b>	<b>Lubritan GXL</b>	60' (0, 2%,4%,6%,8% of GXL)
	0.5	Formic Acid	20'

# Lubritan GXL

- Application Parameters



It shows that to get the benefit of the product, you need certain amount to get the full penetration, in the test condition is 6%, but may be more or less in other formulation

# Lubritan GXL

- Automotive Leather

<b>Tightness</b>	<b>even milling pepper</b>
<b>Fullness (thickness)</b>	<b>1.44, 20% increase on blue</b>
<b>Temper/BLC</b>	<b>5.9mm</b>
<b>Tongue tear (N/mm)</b>	<b>66.32</b>
<b>Fog Gravimetric(mg)</b>	<b>3.43</b>
<b>Fog Reflectance (%)</b>	<b>90</b>

%	water @ 40C	10'
100	water @ 40C	
3.0	Blancorol RC	60'
1.0	Sodium Acetate	
1.0	Atlasol 800-R	
0.5	sodium bicarbonate	60',
		pH5.3
100	water @50C	
4	Leukotan 970	30'
12	<b>Lubritan GXL</b>	
2	Tanigan BN	
2	Brown CGG02	
2	Tara	60'
5	Atlasol 800-R	60'
1	HCOOH	10'
0.5	HCOOH	15'

# Lubritan GXL

- White Sport Shoe

Heat and Light resistance

Heat:

$$\Delta E_{\text{GXL}} = 1.95$$

$$\Delta E_{\text{W.Syntan+oil}} = 3.41$$

Light(UV):

$$\Delta E_{\text{GXL}} = 0.61$$

$$\Delta E_{\text{W.Syntan+oil}} = 5.04$$

Whiteness:

$$L_{\text{GXL}} = 83$$

$$L_{\text{W.Syntan+oil}} = 89$$

# Lubritan GXL

- Furniture Leather

	<b>10% Oil</b>	<b>8% oil + 3% GXL</b>
<b>Color of dyeing</b>	<b>Almost Same,</b>	<b>Almost Same, cleaner</b>
<b>Milling corn</b>	<b>Flatter, bigger in pocket area</b>	<b>More pronounced, more even the whole side</b>
<b>Fullness</b>	<b>Slightly less full</b>	<b>Fuller</b>
<b>Thickness (mm)</b>	<b>1.365</b>	<b>1.354</b>
<b>Softness</b>	<b>Very Slightly softer</b>	<b>Very Slightly firmer</b>
<b>Temper/BLC</b>	<b>5.4</b>	<b>5.2</b>
<b>Tongue tear (N/mm)</b>	<b>33.68</b>	<b>36.01</b>

\*\*\*\*3% GXL replace 2% Oil

# Lubritan GXL

- Split Leather

	<b>4% Oil</b>	<b>6% GXL</b>
<b>Color of dyeing</b>	<b>Almost Same,</b>	<b>Almost Same, cleaner</b>
<b>Buffing nap</b>	<b>standard</b>	<b>Much finer and shorter</b>
<b>Softness</b>	<b>Slightly softer</b>	<b>Slightly firmer</b>
<b>Temper/BLC (mm)</b>	<b>4.0</b>	<b>3.6</b>
<b>Tongue tear (N/mm)</b>	<b>60.41</b>	<b>62.31</b>

# Lubritan GXL

- Wet White Lubritan GXL vs Leukotan ER-N+Oil

Operatio	%	Chemicals	time	Check	Chemical Weight (g)	
Wet Back only with water, retan with 3% of Leukotan 970, neutralize to pH 4.9, wash, sepaerate,						
Retan/Dye	100	water @40C				
	8.0	Lubritan GXL			18.4	
	4.0	Leukotan ERN				10.8
	2.0	Euraka LT	45		4.6	5.4
	10.0	Tanigan TM			23.0	27.0
	2.0	Yellow Brown 3G	30		4.6	5.4
	6.0	TARA			13.8	16.2
	5.0	Retigan R7			11.5	13.5
	2.0	Tanigan SR	60	Cut OK	4.6	5.4
	100	water @50C			230.0	270.0
	0.50	Formic Acid	20		1.2	1.4
				pH	4.3	4.5
	3.0	Filler	10		6.9	8.1
	2.0	Euraka LT			4.6	5.4
	2.0	Euraka 950-R			4.6	
	6.0	Euraka 950-R	60			16.2
	0.8	Formic Acid	20		1.7	2.0
	0.8	Formic Acid	20		1.7	2.0
D/Wash cold			10	pH	3.9	3.9
Horse O/N, vacumm 60C, 60", Hang						

# Lubritan GXL

- Wet White Lubritan GXL vs Leukotan ER-N+Oil

## Leather property

	Tightness	softness	color	fullness
ERN+oil	control	control	control	control
GXL	similar	slightly softer	slightly lighter	fuller

## Test Results

	Softness BLC	Fullness / Thickness			Tear Strength	Tensile		
			100°C 4Hrs	100°C 4Hrs rest O/N		Breaking F	Elongation	Tensile strength
			%	%				
ERN+Oil	3.23	1.755	7.46	5.53	48.733	25.07	71.53	13.51
GXL	3.65	1.779	7.72	5.53	61.189	30.61	62.92	16.58

# Lubritan GXL

- Wet White At beginning vs With oil

Operatio	%	Chemicals	time	Check	Chemical Weight (g)	
Wet Back only with water, retan with 3% of Leukotan 970, neutralize to pH 4.7, wash, sepaerate,						
Retan/Dye	100	water @40C				
	8.0	Lubritan GXL			35.2	
	4.0	Leukotan ERN			17.6	20.8
	3.0	Euraka LT	60		13.2	15.6
	10.0	Tanigan TM			44.0	52.0
	2.0	Brown CGG			8.8	10.4
	1.0	Tanigan PR-C	20		4.4	5.2
	6.0	TARA			26.4	31.2
	5.0	Retigan R7			22.0	26.0
	2.0	Tanigan SR	60	Cut OK	8.8	10.4
	100	water @50C			440.0	520.0
	0.50	Formic Acid	20		2.2	2.6
				pH	4.6	4.5
	3.0	Filler	10		13.2	15.6
	2.0	Euraka LT			8.8	10.4
	5.0	Euraka 950-R			22.0	26.0
	8.0	Lubritan GXL	60			41.6
	1.0	Formic Acid	30		4.4	5.2
D/Wash cold			10		3.80	3.60
Horse O/N, vacumm 60C, 60", Hang						

# Lubritan GXL

- **Wet White**    *At beginning vs With oil*

## Leather property

	<b>Tightness</b>	<b>Softness</b>	<b>Color</b>	<b>Fullness</b>
<b>GXL start</b>	s. tighter	softer	lighter	fuller
<b>GXL in oil</b>	control	control	control	control

## Test Results

	Softness BLC	Fullness / Thickness			Tear Strength	Tensile		
			100°C 4Hrs	100°C 4Hrs rest O/N		Breaking F	Elongation	Tensile strength
			%	%				
GXL start	<b>3.46</b>	<b>1.615</b>	<b>6.94</b>	<b>5.62</b>	<b>81.878</b>	<b>33.72</b>	<b>62.21</b>	<b>20.26</b>
GXL in oil	<b>3.38</b>	<b>1.524</b>	<b>6.05</b>	<b>4.29</b>	<b>90.447</b>	<b>33.68</b>	<b>65.01</b>	<b>21.69</b>