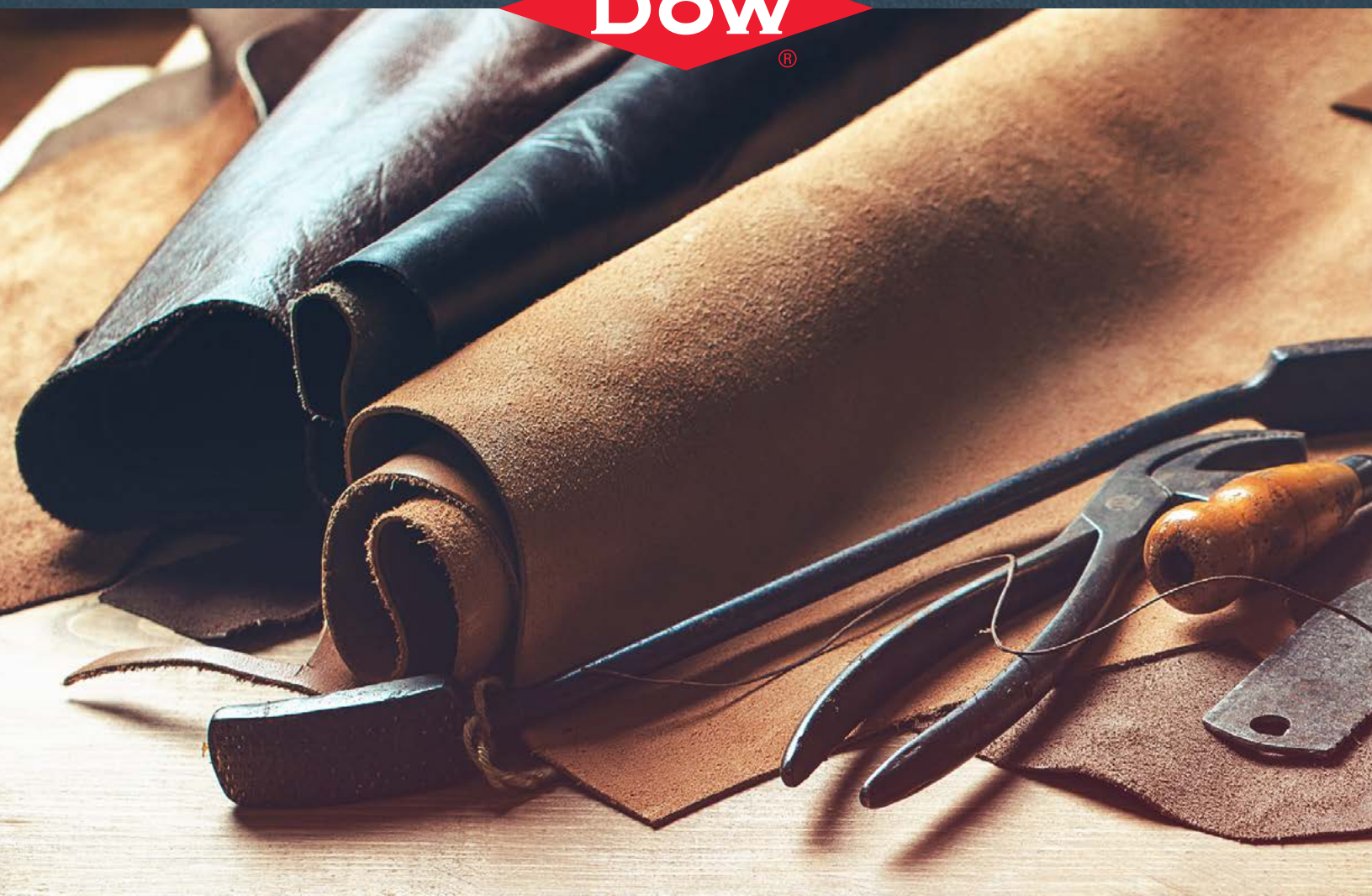


# Dow Silicone and Organic solutions for natural leather treatment

**DOW**

®



# Leading the way in leather coatings

## Enhancing the look, feel and performance of leather goods

From footwear and fashion accessories to furniture and clothing to automotive upholstery, leather plays many roles in everyday life.

Our robust portfolio of organics and silicone dispersions, combined with our long history of industry collaboration, can help you:

- Enhance processing efficiency in wet end
- Develop high-performance top coats that impart superior feel, water repellency and resistance to abrasion and soiling in leather finishing

## Wet end chemistries

Acrylic syntans								
	pH	% solids	Key features	Auto	Furniture	Shoe	Garment	Split
LEUKOTAN™ 1084 Tanning Agent	6.0	28	Universal. Very full. Tightness. Roundness.	++	++	+++	++	++
LEUKOTAN™ ERN Tanning Agent	7.0	32	Universal. Tightness. Filling. Economical.	++	+++	+++	++	+++
LEUKOTAN™ 1093/1093 NW* Tanning Agents	8.0	40	Tightness. Firmness. Low stretch. Improved dye value. Useful for water resistance.	++	+	+++	+	+
LEUKOTAN™ 8090 Tanning Agent	8.5	45	Dispersing. Selective fill. Smooth grain.	+++	+++	+++	+++	+
OROTAN™ 731A Dispersant/ LEUKOTAN™ MB Tanning Agent	10.3	25	Dispersing.	++	++	++	++	++
LEUKOTAN™ FW-2E/FW-2G Tanning Agents	8.3	30	Whitening. Bright and clean color. Imparts smooth and full grain.	++	++	+++	++	+++
LEUKOTAN™ FW-96 Tanning Agent	8.0-8.7	30.5	Whitening. Bright and clean color. Imparts smooth and full grain.	++	++	+++	++	+++

Application properties	Break	Softness	Belly filling	Fullness	Waterproof	Dispersing	Dyeing
LEUKOTAN™ 1084 Tanning Agent	++	+++	+++	+++	-	++	++
LEUKOTAN™ ERN Tanning Agent	+++	++	+++	++	-	++	+++
LEUKOTAN™ 1093/1093 NW* Tanning Agents	+++	+	+++	+++	●	++	+++
LEUKOTAN™ 8090 Tanning Agent	+++	+++	+++	+	●	+++	+++
OROTAN™ 731A Dispersant/ LEUKOTAN™ MB Tanning Agent	+	+	+	+	-	+++	+++
LEUKOTAN™ FW-2E/ FW-2G Tanning Agents	++	++	+++	++	-	+	+
LEUKOTAN™ FW-96 Tanning Agent	++	++	+++	++	-	+	+

The graphic representations are presented here for illustrative purposes only and should not be construed as product specifications.

\*Available only in Europe

Key:

+++ High level

++ Moderate level

+ Minimum level

● Trace level

- Not applicable

These properties are typical but do not constitute specifications.

Lubricating acrylic polymers								
	pH	% solids	Key features	Auto	Furniture	Shoe	Garment	Split
LEUKOTAN™ GXL Tanning Agent	5.4	35	Tightening. Softening. Excellent tear strength. Good buffability. Low fogging.	+++	++	+++	++	+++
LEUKOTAN™ SP/SPE Tanning Agents	4.9	35	Water resistant. Tightening. Softening. Good tear strength. Low density. Good breathability. Low fogging.	+++	+++	+++	+++	+++
LEUKOTAN™ NS3 Tanning Agent	7.5	35	Waterproof. Very softening. Spongy. Dry cleanable and washable. Good milling properties.	–	Use waterproofing as a fluffy fatliquor for special articles.			
LEUKOTAN™ XE3 Tanning Agent	7.2	60	Waterproof. Pleasing surface touch.	–	Use waterproofing. Small amount may be used to modify surface touch.			

Application properties	Break	Softness	Belly filling	Fullness	Waterproof	Dispersing	Dyeing
LEUKOTAN™ GXL Tanning Agent	++	++	+	+	•	+	++
LEUKOTAN™ SP/SPE Tanning Agent	++	++	++	++	++	++	++
LEUKOTAN™ NS3 Tanning Agent	+	+++	++	+	+++	+++	+++
LEUKOTAN™ XE3 Tanning Agent	–	++	+	+	+++	+	+++

Impregnation binders/penetrators						
	pH	% solids	Charge	Ammonia reaction	Appearance	Key features
PRIMAL™ FGR Binder Emulsion	7.5 - 8.5	22.0 - 24.0	Anionic	No reaction to ammonia	Water-soluble, translucent liquid.	Designed for full-grain. Improved break on soft leathers.
PRIMAL™ 863 Binder Emulsion	5.0 - 6.0	34.0 - 36.0	Anionic	Thickens with ammonia	Ultra-fine dispersion. Milky liquid.	Versatile use. Improves break with mellow temper.

Key:

+++ High level

++ Moderate level

+ Minimum level

• Trace level

– Not applicable

These properties are typical but do not constitute specifications.

## Finishing chemistries

Acrylic basecoat binders										
	Adhesion	Wet physicals	Toluene resistance	Plate release	Molding	Key features	Full grain	Corrected grain	Split	Market segment
<b>Hard</b>										
PRIMAL™ ST-59 Emulsion	✓	✓	✓			Handling. Toughness.	✓			■
<b>Soft</b>										
PRIMAL™ 863 Emulsion	✓					Adhesion promoter.	✓	✓		▲
PRIMAL™ SB-150/LH-550* Brazil Emulsions				✓	✓	Fill. Print retention. Flex.	✓	✓	✓	▲
HYDRHOLAC™ CL-1 Emulsion					✓	Extends PUD. Cold flex.	✓	✓	✓	▲
PRIMAL™ SB-160 Emulsion		✓		✓	✓	Strong print support. Cold flex.		✓	✓	▲
PRIMAL™ SB-300/SB 300 ER Emulsions		✓		✓	✓	Strong print support. Cold flex.		✓	✓	▲
<b>Very soft</b>										
PRIMAL™ SB-100/LH-500 Brazil Emulsions			✓	✓	✓	Fill. Plate release. Flex retention. Softness.	✓	✓	✓	▲
PRIMAL™ SCL-371 Emulsion	✓	✓	✓			Adhesion. Wet properties.	✓	✓		■▲

Key:

■ Shoe

▲ Universal

□ Garment

△ Upholstery

These properties are typical but do not constitute specifications.

Acrylic basecoat binders				
	pH	% solids	Viscosity (cPs)	Key features
PRIMAL™ ST-59 Emulsion	7.7 - 9.0	34.5 - 35.5	<20	Hard, tough, good chemical resistance
PRIMAL™ 863 Emulsion	5.2 - 5.8	34.3 - 35.7	<20	Good for adhesion, and break improvement
PRIMAL™ FGR Emulsion	7.5 - 8.5	22.0 - 24.0	<100	Good for adhesion, and break improvement
PRIMAL™ SB-150 Emulsion	7.0 - 8.0	34.5 - 35.5	<100	Good for embossing properties
HYDRHOLAC™ CL-1 Emulsion	6.8 - 8.0	36.0 - 37.0	<100	Good general purpose binder, good cold properties
PRIMAL™ SB-160 Emulsion	7.0 - 8.0	34.0 - 35.0	<100	Good embossing properties, good cold properties
PRIMAL™ SB-300 Emulsion	8.0 - 9.0	35.0 - 36.0	<30	Good embossing properties, good cold properties, rubbery
PRIMAL™ SB-100 Emulsion	7.0 - 7.7	34.5 - 35.5	<200	Very soft, good for delicate embossing detail
PRIMAL™ SCL-371 Emulsion	7.5 - 9.5	35.5 - 36.5	<20	Good water resistance properties, good chemical resistance properties

With the exception of PRIMAL™ FGR Emulsion all basecoat polymers are supplied as a milky white, low viscosity emulsion

All basecoat polymers are water-borne and supplied with a specific gravity/density close to water.

All basecoat polymers are anionic.

Isocyanate-based crosslinkers						
	% solids	Density lbs/gal (US)	VOC, lbs/gal (US)	Specific gravity	Gloss reduction	Key features
BINDER LS-3492 Crosslinker	49 - 51	9.0	4.33	1.07	Very good	Clear liquid. Recommended for all aqueous coats though primarily used in auto top. Can be used 'hot-pot' or in-line. Self-emulsifying in water.
BINDER LS-3486-HS Crosslinker	50 - 52	8.7	4.33	1.04	Best	Clear liquid. Recommended for all aqueous coats though primarily used in auto top. Can be used 'hot-pot' or in-line. Self-emulsifying in water.

Rheology modifiers									
	pH	% solids	Charge	Specific gravity	Density lbs/gal (US)	Appearance	VOC, lbs/gal (US)	Typical usage %	Application details
ACRYSOL™ ASE-60 Rheology Modifier	2.1 - 3.5	27.5 - 28.5	Anionic	1.06	8.9	Milky liquid	0.02	1 - 2	Base activated.
ACRYSOL™ RM-825 Rheology Modifier	6.0 - 8.0	24.0 - 26.0	Anionic	1.10	8.7	Milky liquid	4.00	1 - 2	Requires good agitation to activate.
ACRYSOL™ RM-1020 Rheology Modifier	6.5 - 7.5	19 - 21	Anionic	1.04	8.7	Hazy liquid	3.23	1 - 2	Use cut 1:1.
ACRYSOL™ RM-2020E Rheology Modifier	N/A	19 - 21	Non-ionic	1.045	8.7	Hazy liquid	Solvent free (not intentionally added)	1 - 2	Use cut 1:1.
ACRYSOL™ RM-819W Rheology Modifier	4.5 - 6.5	21.8 - 24.8	Non-ionic	1.01	8.73	Milky liquid	Solvent free	1 - 2	Requires good agitation to activate.
ACRYSOL™ RM-12WE Rheology Modifier	4.5 - 7.5	17 - 20	Non-ionic	1.01	8.73	Milky liquid	Solvent free	1 - 2	Use cut 1:1.

These properties are typical but do not constitute specifications.

## Additives

	pH	% solids	Charge	Specific gravity	Density lbs/gal (US)	Viscosity cPs	Key features
PRIMAL™ Leveler MA-65E Emulsion	10.0 - 11.6	19.0 - 21.0	Anionic	1.0	8.3	Watery	Flow agent, stir just prior to use
PRIMAL™ Fleshcoat AR-2 Emulsion	7.0 - 8.0	17.0 - 19.0	Anionic	1.0	8.3	<50	Mitigates aldehydes, best applied on the fleshside after finishing

## Topcoat binders

Acrylic topcoat binders								
	pH	% solids	Charge	Specific gravity	Density lbs/gal (US)	Viscosity cPs	Appearance	Key features
HYDRHOLAC™ CL-1 Emulsion	6.8 - 8.0	36.0 - 37.0	Anionic	1.02	8.3	< 100	Milky white low-viscosity liquid	General purpose. Designed for furniture or auto.
HYDRHOLAC™ HPB-980 Emulsion	7.5 - 9.0	35.5 - 36.5	Anionic	1.0	8.3	<20	Milky white low-viscosity liquid	Good intermediate coat, promotes wet properties

Formulated topcoat dullers								
	pH	% solids	Charge	Specific gravity	Density lbs/gal (US)	Viscosity cPs	Key features	
OPTI-MATT™ AB-2 Duller	7.2 - 9.0	30.0 - 33.0	Anionic	1.0	8.5	200 - 400	Non-silica based dulling agent.	
HYDRHOLAC™ UD-2 Emulsion	8.4 - 9.4	23.0 - 25.0	Anionic	1.1	9.1	300 -1500	Milky white liquid. Silica filled for gloss reduction.	
OPTI-MATT™ UD-4 Duller	8.0 - 9.5	24.5 - 26.5	Anionic	1.1	9.1	250 - 1500	Milky white, thixotropic liquid. Hybrid dulling technology	
HYDRHOLAC™ AD-1 Emulsion	8.4 - 9.4	23.0 - 25.0	Anionic	1.06	8.8	250 - 1500	Milky white liquid. Silica filled for gloss reduction.	
OPTI-MATT™ A-2000 LV Duller	6.5 - 8.5	24.5 - 26.5	Anionic	1.03	8.4	200 - 1000	Milky white liquid. Acrylic. Formulated as a ready-to-use dull topcoat.	

## Additives for finishing

Product	Features / benefits
<b>Top coatings</b>	
DOWSIL™ Q2-3238 Dispersable Silicone Additive	High concentrated non aqueous dispersion of high-molecular-weight silicone; used particularly as an additive in automotive leather finishes, providing wet rub resistance and feel modification combined with a matte appearance; compatible with polyurethane and acrylic binders; suitable for solvent and aqueous-based binders.
DOWSIL™ IE-9148 LF Dispersion	BTX free*, high molecular weight silicone dispersion in solvent diethylene glycol to improve ease of handling and formulating; used particularly as an additive in automotive leather finishes, providing wet rub resistance and feel modification combined with a matte appearance; compatible with polyurethane and acrylic finishes; suitable for aqueous and co-solvent based binder.
DOWSIL™ 5-7310 LF Emulsion	High molecular weight silicone aqueous dispersion; used particularly as an additive in automotive leather finishes, providing wet rub resistance and feel modification combined with a matte appearance; compatible with polyurethane and acrylic binders; suitable for aqueous-based binders.
DOWSIL™ 5-7222 LF Emulsion	Extremely high molecular weight polydimethylsiloxane macroemulsion for leather finishes; offers a silky smooth finish, abrasion and wet rub resistance. Suitable for aqueous based binders.
DOWSIL™ 5-7254 LF Emulsion	Aminofunctional silicone microemulsion for anti-squeak performance of leather top coatings. Suitable for aqueous based binder.

\*DOWSIL™ IE-9148 LF Dispersion is BTX free, being manufactured without the use of BTX materials.

## Additives for finishing (continued)

Product	Features / benefits
<b>Top coatings</b>	
DOWSIL™ 23 N Additive	Silicone elastomer powder providing a rubbery smooth matte finish, mar and abrasion resistance to top coatings; suitable primarily for solvent based binders but also for aqueous based binders after predilution in co-solvent.
DOWSIL™ 33 Additive	Silicone elastomer powder aqueous suspension providing a rubbery smooth, medium matte finish, mar and abrasion resistance to top coatings; suitable for water-based binders
XIAMETER™ MEM-8818 Emulsion	Aminofunctional silicone emulsion for touch and softness modification
DOWSIL™ 5-7031 LF Emulsion	Aminofunctional silicone macroemulsion for touch modification combined with moderate enhancement of wet rub resistance
DOWSIL™ HV 496 Emulsion	High-molecular-weight anionic silicone emulsion; offers some abrasion resistance, gloss finish and medium hydrophobicity to leather top coatings.
XIAMETER™ OFX-0531 Fluid	Aminomethoxy-functional polydimethylsiloxane in solvent; premium softener for leather treatments; can be chemically reacted into polymer systems, minimizing or eliminating the problem of silicone transfer or oiling and enhancing durability; improves abrasion resistance, durable water repellency, modify surface properties. Suitable for solvent based binders.
<b>Post finishing</b>	
DOWSIL™ FBL-0477 Formulated Blend	Reactive silicone resin in solvent; used as a topcoat; offers excellent hydrophobicity, supple and breathable leather.
XIAMETER™ MEM-0347G Emulsion	Slightly anionic emulsion of low molecular weight silanol polymer; can be used as release agent between coated finished leather to minimize adhesion during storage. Dilutable in water.
<b>Top coating formulation aid</b>	
XIAMETER™ OFX-0190 Fluid	Formulation additive for leveling and wetting of aqueous based coatings
XIAMETER™ OFX-5211 Fluid	Formulation additive for leveling and wetting to improve surface appearance finishes of aqueous based binders.
<b>Wet end - fat liquor</b>	
DOWSIL™ 5-7203 WE Emulsion	Nonionic microemulsion of organofunctional polymer; formulation additive for fat liquor, impart hydrophobization and lightweight softness.
<b>Hand modifiers</b>	
ROSILK™ 3000 Feel Modifier	Good slip. Absent strong silicone feel. Good for gas rubs.
ROSILK™ 2229/2229BHP Feel Modifiers	Good slip. Silicone feel. Good for high abrasion.
PRIMAL™ 191 Emulsion	Confers a buttery feel.

These properties are typical but do not constitute specifications.

## Natural leather - Product selector guide

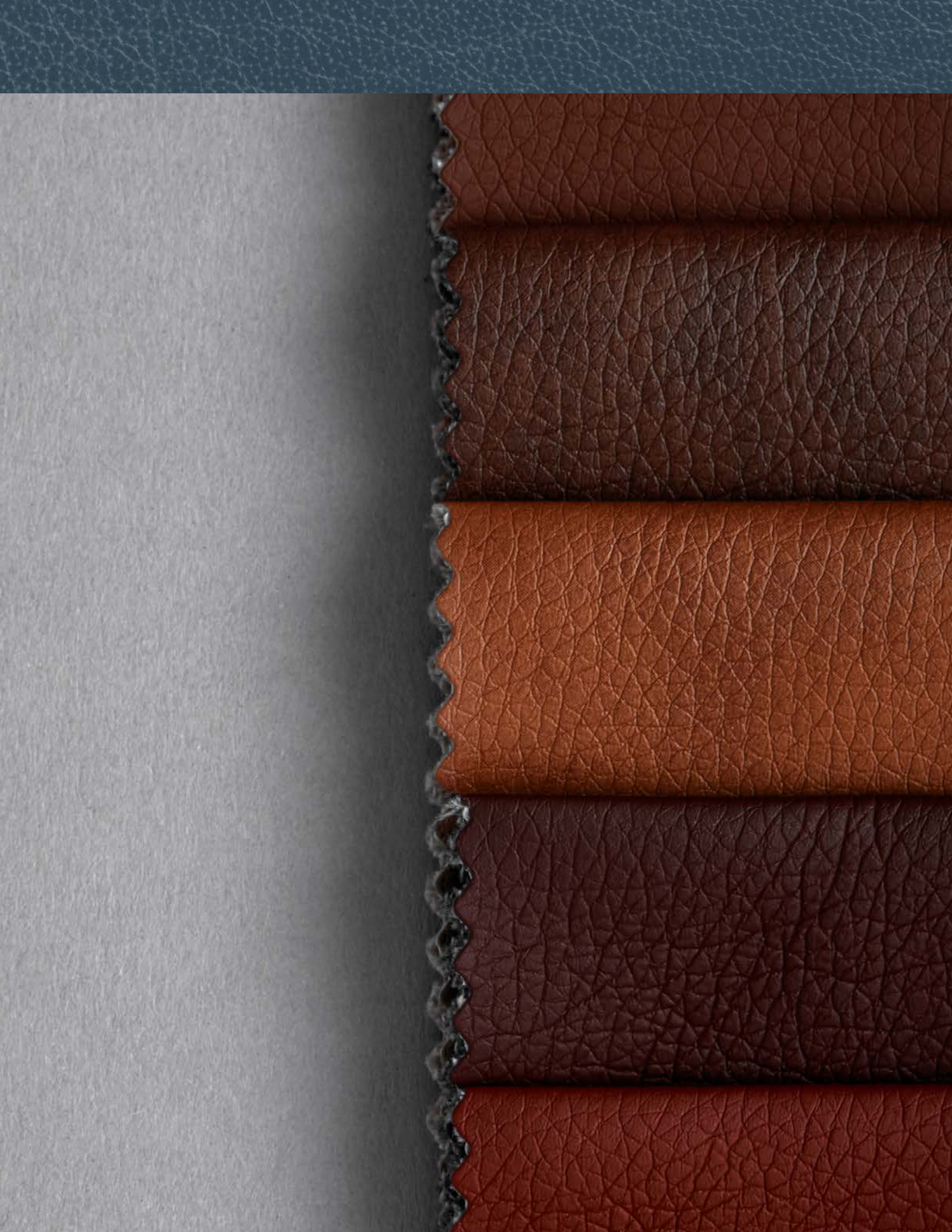
Product	Benefit									Binder system	
	Abrasion resistance	Wet rub resistance	Matting agent	BTX free*	Feel modifier	Anti-squeak	Water repellency	Release	Leveling	Aqueous	Solvent
<b>Top coatings</b>											
DOWSIL™ Q2-3238 Dispersible Silicone Additive	X	X			X		X			X	X
DOWSIL™ 2-9147 LF Dispersion	X	X			X		X			X	X
DOWSIL™ IE-9148 LF Dispersion	X	X		X	X		X			X	X
DOWSIL™ 5-7310 LF Emulsion	X	X			X					X	
DOWSIL™ 5-7222 LF Emulsion	X	X		X	X					X	
DOWSIL™ 5-7254 LF Emulsion						X				X	
DOWSIL™ 23 N Additive		X	X	X	X					X	X
DOWSIL™ 33 Additive		X	X	X	X					X	
DOWSIL™ 5-7031 LF Emulsion		X		X	X		X			X	
XIAMETER™ MEM-8818 Emulsion				X	X					X	
DOWSIL™ HV 496 Emulsion		X		X			X			X	
XIAMETER™ OFX-0531 Fluid	X				X		X				X
<b>Post finishing</b>											
DOWSIL™ FBL-0477 Formulated Blend					X		X				X
XIAMETER™ MEM-0347G Emulsion				X				X		X	
<b>Top coating formulation aid</b>											
XIAMETER™ OFX-0190 Fluid				X					X	X	
XIAMETER™ OFX-5211 Fluid				X					X	X	
<b>Wet end-fat liquor</b>											
DOWSIL™ 5-7203 WE Emulsion				X	X		X			X	

X - Benefit that can be leveraged to

\*Being manufactured without the use of BTX materials.

These properties are typical but do not constitute specifications.







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