

# **Opti-Matt™ Dulling Technology for Furniture Leather Topcoats**

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# Unique polymer technology that provides:

- **Low gloss in pigment free topcoats.**
- **Outstanding clarity in pigment free topcoats.**
- **Built in structure for soft feel aesthetics.**
- **Physical performance under challenging conditions.**

# Leather Furniture Upholstery Topcoat Demands:

- **Aesthetics:**
  - **Broad gloss targets (minimum 1.0)**
  - **Color clarity (low gloss-pigment free coatings)**
  - **Softness a priority**
  - **Attaining multiple types of “feels”**
  
- **Physical Performance:**
  - **Burnish/polishing resistance**
  - **Wet rub fastness**
  - **Flexibility**

# Appearance Demands

- **Color clarity at low gloss is difficult to achieve.**
- **Inorganic dullers are efficient at reducing surface gloss, but negatively impact clarity.**
- **Formulating pigments into topcoats solve some of these issues, but can lead to physical fastness degradation and losing desired article “affects”.**
- **Opti-Matt™ duller provides opportunities to balance appearance and performance in pigment free furniture topcoats.**

# Aesthetics and Performance of Opti-Matt™ Technology in a Furniture Topcoat formulation

Topcoat component	Parts/1000 parts
Water	320
Opti-Matt™ A-1000	600
Polyisocyanate Crosslinker (50% TS)	80
Total Solids of topcoat	19.9%
Hand spray add-on	0.5g dry/sq ft (2.5grams wet/sq ft)

- Clear topcoat sprayed over smooth, black furniture leather basecoat)
- Cure in 180F oven for 3 minutes and overnight at RT.
- Topcoat gloss can be adjusted with the use of a suitable clear such as Opti-Clear™ A-1100

# Aesthetic and Physical Performance Attributes

Performance tests	Results	Contributing Factor
<b>Gloss</b> of topcoat (No pigment)	1.0 at 60°	Polymer design.
<b>Wet Rub Fastness</b> (300cycles/1KG)	4.5-5.0 gray scale	Chemical compatibilities, film effects (flow, adhesion)
<b>Burnish Resistance</b> (dry rub, 500cycles/1KG)	Minimal increase in gloss	Film-Surface Morphology.
<b>Dry Bally Flex</b> (100,000)	No cracks or crazing	Polymer softness & Film formation.
<b>Surface touch</b>	Soft, velvety tactile feel, not sticky or tacky.	Polymer design & Film- Surface Morphology.

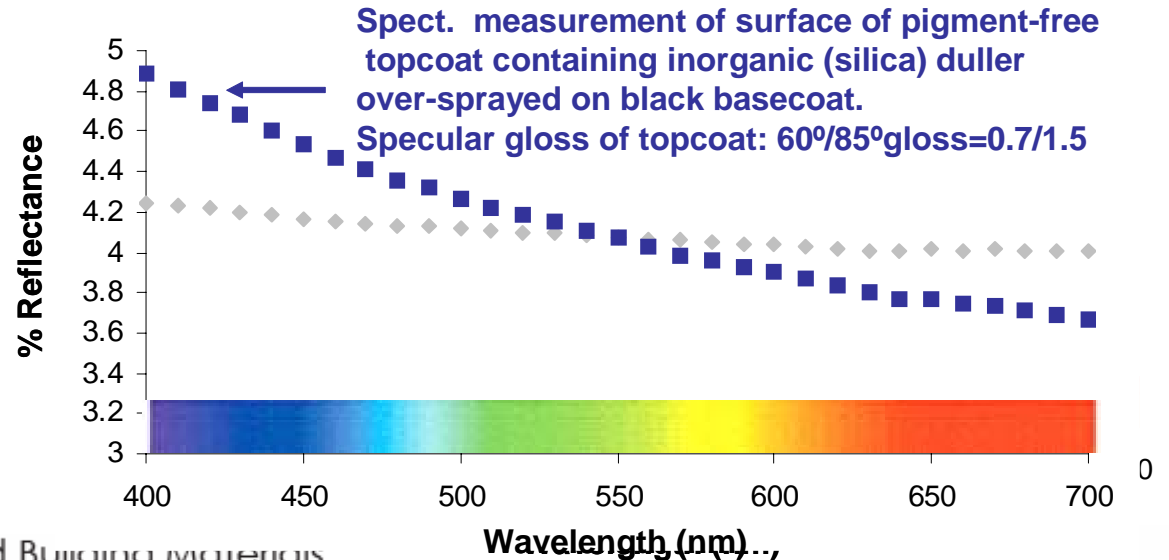
# Color and Gloss: Tops with Inorganic Matting

Illustration of effect

Appearance after applying pigment-free top containing inorganic (silica) duller.  $60^{\circ}/85^{\circ}\text{gloss}=0.7/1.5$

Black coatings ~ light adsorption

Actual spectroscopic measurement of Finished leather



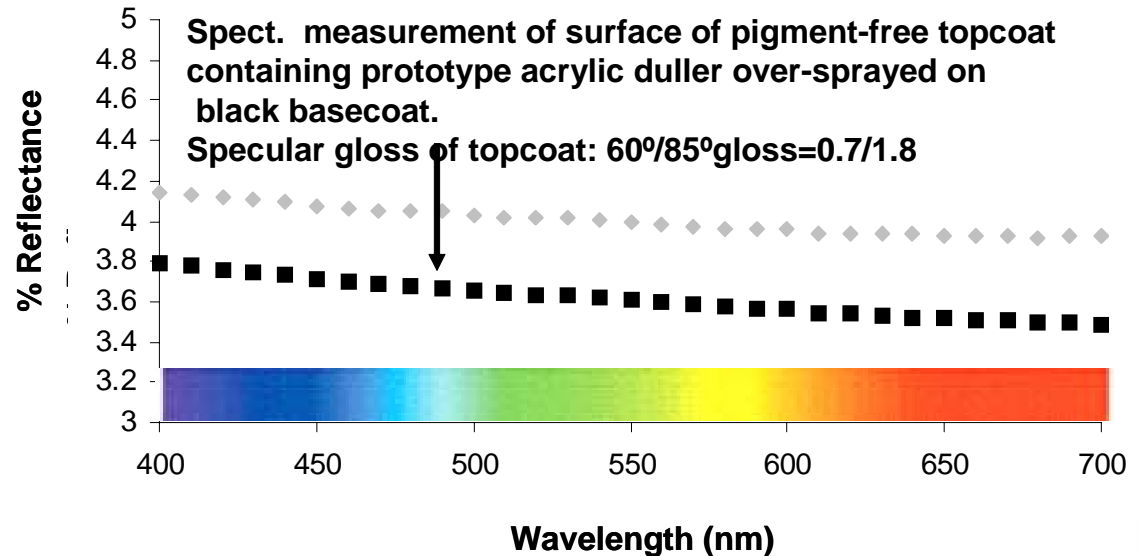
# Topcoat color and gloss: with Opti-Matt™ Technology

Illustration of effect

Overspray with pigment free-top  
Containing Opti-Matt™ technology  
(silica free). 60°/85°gloss=0.7/1.8

**Opti-Matt™ can provide an  
interesting new balance of low  
gloss and color clarity.**

Actual spectroscopic measurement  
of Finished leather

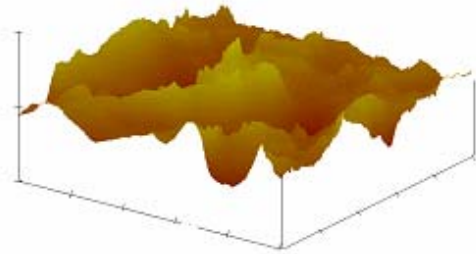


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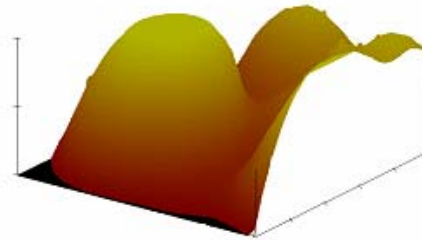
# Burnish Resistance and Soft Touch

(Scanning Probe Microscopy of topcoat surface)

Scanning Probe Microscopy:  
Surface of a Conventional Topcoat Duller film



Scanning Probe Microscopy:  
Opti-Matt™ Dulling Technology



**Opti-Matt™ technology provides new surface morphology that enhances burnish resistance and provides a soft touch to topcoat finishes**

# Opti-Matt™ Topcoat Technology Provides:

- Specialty polymeric approach to achieving low gloss and high clarity in pigment free topcoats.
- Built in structure for soft feel aesthetics
- Delivers burnishing resistance.
- Physical performance under challenging conditions.