



**In Union,  
there is strength.**



## UNITHANE IC-451 NF

Revision Date: 11/23

Reviewed: 11/08/2023

### RECOMMENDED FOR USE WITH:

Paint and Coating Resins, Graphic Arts, Flexible Substrates

Unithane IC-451 NF is a NMP free, medium hard, high gloss, APEO free, waterbased polyurethane dispersion; with fast drying and automotive grade properties. Specifically designed for use in a formulated coating for wood, metal, concrete, flooring, graphic arts, paint, textiles and selected plastics.

### SPECIAL FEATURES

NMP-Free (NF)

### APPLICATION TYPES

Interior, Exterior, Synthetic Leather, Flooring, Wood, Paint, Graphic Arts, OPV, Paper, Textiles, Plastics - Flexible, Plastics - Rigid

### TYPICAL SPECIFICATIONS

**TOTAL SOLIDS:** 34 - 36

**pH:** 8.0 - 9.0

**VISCOSITY @ 25 DEGREES C:** 20 - 250 cps

**VOC (GRAMS/LITER):** 100-110

**VOC (% OF TOTAL WEIGHT):** 9-11

**SPECIFIC GRAVITY:** 1.04-1.06

**APPEARANCE:** Semi-translucent

**GLOSS @60°:** 80 - 100

**FREEZE/THAW CYCLES D2243:** 0

**SHELF LIFE:** Maximum 12 months

**HARMONIZE TARIFF NUMBER:** 3909.50.6000

### CHEMICAL RESISTANCE TESTING (D-1308)

*note: 5= no damage, films dried for 15 minutes at 80°C,  
then equalized at room temp for 7 days*

**WATER:** 5

**ACETIC ACID:** 5

**AMMONIA:** 5

**METHYL ETHYL KETONE:** 5

**2-PROPANOL:** 5

**TOLUENE:** 5

**GASOLINE:** 5

### TYPICAL FILM PROPERTIES

**FILM APPEARANCE AFTER CURING:** Clear

**TENSILE (D-882):** 3240 psi

**TENSILE AT 100% ELONGATION:** 2110 psi

**ELONGATION (D-882):** 289%

**COLD CRACK (ISO 17233):** >-30°C

**SOFTENING POINT:** 175°C

**PENCIL HARDNESS (D-3363):** HB

**SWARD HARDNESS (D-2134):** 31

**UV RESISTANCE (D-4587):** No Damage (1000 hours at 340 nm)

**IMPACT RESISTANCE (D-2794):** No Damage at 160 psi Direct  
Damage at 160 psi Reverse

**TABOR ABRASION (D-4060):** 4 mg loss (CS-10, 1000g 1000  
cycles)

**MANDREL BEND (D522):** Pass 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 1

**DRY TIME (D-5895):** >30 minutes

**HYDROLYSIS RESISTANCE (200 HOURS, 70°C, 95% RH):** Retained  
84% of Tensile Properties

### VARIOUS SUBSTRATE CROSS-CUT ADHESION (D-3359)

**COLD ROLL STEEL - UNPOLISHED:** 5B

**ALUMINUM - UNTREATED:** 5B

**ABS - UNTREATED:** 5B

**POLYCARBONATE - UNTREATED:** 0B

**NYLON - UNTREATED:** 5B

**HDPE - UNTREATED:** 0B

Certified to ISO-9001: 2015

Union Specialties, Inc. 3 Malcolm Hoyt Drive, Newburyport, Massachusetts USA

Phone: 978-465-1717 Fax: 978-465-4194 email: union@unionspecialtiesinc.com www.UnionSpecialtiesInc.com

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