

PRODUCT BULLETIN
WearGuard™-420
 Gloss Urethane Topcoat



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DESCRIPTION:

A one-component, oil-free, moisture-cure urethane for protecting interior concrete floors.

USES:

- Ideal for main aisles, production, assembly and warehousing areas.

ADVANTAGES:

- Offers durable protection against dirt, spills and wear
- Cleans easily, saving detergent, labor and wear
- Eliminates concrete dusting
- Complies with Federal VOC regulations
- High gloss finish increases light reflectivity
- Levels out better than WearGuard™-ITS

STORAGE: Materials should be stored indoors between 65°F (18°C) and 90°F (32°C).

SHELF LIFE: Minimum 1 year from date of manufacture.

PACKAGING OPTIONS / PART NUMBERS:

WearGuard-420:

1 gallon (3.78 litres) / 392380

5 gallons (18.9 litres) / 392381

OPTIONS:

Colors: Tennant Colorants may be added to WearGuard-420. Colors available are Battleship Gray, Tile Red, Smoke Blue, Ivy Green, Medium Gray, Yellow, Canada Gray, Regal Blue, Sandy Beige, Black, Rotunda Red, Black 100, Canada Gray 100, Medium Gray 100 and Yellow 100. Light Gray, Light Gray 100, White and White 100 are not recommended as exposure to light will cause these lighter colors to discolor in a short time.

Use colorants at a rate of one unit per one gallon (3.78 litres) of WearGuard-420. Yellow, Rotunda Red and Yellow 100 will not impart total hide. Use these colorants at a rate of two units per gallon (3.78 litres) of WearGuard-420.

Traction Grit To improve traction in slip hazard areas, use 291 or 292 in the second coat of WearGuard-420. See 291 or 292 product bulletin.

LIMITATIONS:

UV/Light Stability: This product is not UV/light stable and will yellow/amber over time.

Contamination (Fisheyes): Products may fisheye if oil, silicones, mold release agents or other contaminants are present.

MATERIAL PROPERTIES (LIQUID):

Property	Test Method	Results
Flash Point °F/C Seta Closed Cup	ASTM D3278	85 (29)
Percent Solids, by wt	ASTM D2369	46.8
Density lb/gal / kg/L	ASTM D1475	9.11 (1.09)
Viscosity, cps Brookfield	ASTM D2196	65-85
Volatile Organic Compound - VOC lb/gal (g/L)	ASTM D3960	3.38 (405)

CURED COATING PROPERTIES (DRY FILM):

Property	Test Method	Results
Abrasion Resistance, mg loss Taber Abraser	ASTM D4060*	30-40
Coefficient of Friction - COF James Friction Tester	ASTM D2047	0.52-0.55
Dry Film Thickness, mils (microns)		1.7-2.0 - 1 coat (43.28-50.8) 3.5-4.0 - 2 coats (88.9-101.6)
Tensile Strength, psi (MPa)	ASTM D2370	5,000 (34.47)
Percent Elongation	ASTM D2370	120
Flexibility	ASTM D522	Passes highest rating 1/8" (3.175 mm)
Sward Hardness (1 mil (25.4 microns) film)	ASTM D2134	32-36

*CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions
 Results are based on conditions at 77°F, 50% relative humidity.

APPLICATION CHARACTERISTICS:

A gallon of WearGuard-420 will cover:

Coverage Rate, ft ² /gal (m ² /L)	330 (8.11)
Application Thickness, wet mils (microns)	4.86 (123.4)

Results are based on conditions at 77°F, 50% relative humidity.

CHEMICAL RESISTANCE

CLEAR WEARGUARD-420	1 Day	7 Days
Acids, Inorganic		
10% Hydrochloric Acid	E	G
30% Hydrochloric Acid (Muriatic)	F	P
10% Nitric Acid	F	P
50% Phosphoric Acid	E	G
37% Sulfuric Acid (Battery Acid)	E	E
Acids, Organic		
10% Acetic Acid	G	F
10% Citric Acid	E	E
Oleic Acid	G	F
Alkalies		
10% Ammonium Hydroxide	E	E
50% Sodium Hydroxide	E	E
Solvents (Alcohols)		
Ethylene Glycol (Antifreeze)	E	G
Isopropyl Alcohol	G	F
Methanol	P	P
Solvents (Aliphatic)		
d-Limonene	G	F
Jet Fuel - JP-4	E	E
Gasoline	G	F
Mineral Spirits	E	E
Solvents (Aromatic)		
Xylene	G	F
Solvents (Chlorinated)		
Methylene Chloride	P	P
Solvents (Ketones & Esters)		
Methyl Ethyl Ketone (MEK)	P	P
Propylene Glycol Methyl Ether Acetate (PMA)	F	P
Miscellaneous Chemicals		
20% Ammonium Nitrate	E	E
Brake Fluid	P	P
Bleach	E	E
Motor Oil (SAE 30)	E	E
Skydrol® 500B	P	P
Skydrol® LD4	P	P
20% Sodium Chloride	E	E
1% Tide® Laundry Soap	E	E
10% Trisodium Phosphate	E	E

Based on 1-day and 7-day spot testing on concrete.
Coating cured 2 weeks prior to testing.

Legend:

E - Excellent (No Adverse Effect) - Recommended.
G - Good (Limited Adverse Effect) - Use for short-term exposure only.
F - Fair (Moderate Adverse Effect) - Not recommended.
P - Poor (Unsatisfactory) - Little or no resistance to chemical.

Note: Reduced chemical resistance and increased staining is possible in pigmented versions of this system.

Tide® is a registered trademark of Proctor and Gamble.
Skydrol® is a registered trademark of Monsanto.

IMPORTANT:

READ AND FOLLOW ALL PRECAUTIONS AND INSTRUCTIONS BEFORE PROCEEDING.

PRELIMINARY FLOOR INSPECTIONS

CHECK THE CONCRETE: Concrete must be structurally sound and free of curing membrane, paint or other sealer. If you suspect that the concrete has been previously sealed, call Tennant Company, technical support for further instructions.

CHECK FOR MOISTURE: Concrete must be dry before application of this floor coating material. Concrete moisture testing must occur. Calcium chloride testing or in-situ relative humidity testing is recommended. Readings must be below 3 pounds per 1,000 square feet (1.5 kg per 150m²) over a 24-hour period on the calcium chloride test or below 75% relative internal concrete humidity. Test methods can be purchased at www.astm.org, see ASTM F1869 or F2170, respectively or follow manufacturer's instructions.

NOTE: Although testing is critical, it is not a guarantee against future problems. This is especially true if there is no vapor barrier or the vapor barrier is not functioning properly and/or you suspect you may have concrete contamination from oils, chemical spills or excessive salts.

CHECK THE TEMPERATURE AND HUMIDITY: Floor temperature and materials should be between 65°F (18°C) and 90°F (32°C). Humidity must be less than 80%. **DO NOT** coat unless floor temperature is more than five degrees over the dew point.

APPLICATION EQUIPMENT

- Protective clothing
- Jiffy® Mixer Blade
[Tennant Part No. 08643-1 (1 gal) or 08643-5 (5 gal)]
- Slow speed drill (500 rpm or less)
- Mixing pail
- Roller Assembly
- Shed Resistant, 3/8" (10mm) Nap Rollers
- Application Tray
- Disc machine and 100 grit sandpaper
[Tennant Part No. 65451]

ASSEMBLE EQUIPMENT: Clean roller with tape to remove any residual lint.

PREPARATION

Detergent scrub and rinse with clean water to remove surface dirt, grease, oil and contaminants.

Acid Etch (bare concrete): Detergent scrub and rinse with clean water.

Tennant Eco-Prep™ or Diamond Grind: Scrub with Tennant Acid Wash and rinse with clean water (results of diamond grinding may vary depending on technique and the hardness of the concrete. Additional mils may be required).

JOINTS: Depending on the preference of the facility owner, joints may or may not be filled. If the joints are filled, non-moving joints, i.e. contraction or control joints, can be hard filled with thickened, 100% solids epoxy or with a semi-rigid joint filler such as Eco-PJS™ or Eco-EJF™. Construction joints less than one inch wide may also be filled with

Eco-PJS. Isolation or expansion joints must be filled with a flexible material designed for this purpose.

RECOAT

WearGuard-420 can be coated with other Tennant urethanes or may be used as a topcoat over an existing Tennant epoxy or urethane in sound condition. Floor must be sanded prior to recoating with minimum 100 grit paper. We recommend thorough sanding with a swing-type buffer so that multiple scratch marks cause an obvious gloss loss on all areas (depressions will remain shiny), and the floor is uniformly dulled. The ability to see individual scratch marks is an indication that sanding is not adequate. Scrub with detergent and rinse with clean water before coating.

APPLICATION - COATING

PREMIX FOR 3 MINUTES USING A JIFFY® MIXER BLADE with slow speed drill. Shake the one-gallon units. **POTLIFE:** *Mix only enough material which can be used in a two-hour period.* **NOTE:** *Once opened, this material cannot be resealed for later use.*

COLORS: Premix Tennant Colorant before adding to *WearGuard-420* to ensure uniform color. Use a separate mixing container when using colorants. Add *WearGuard-420* to the mixing container, then, add colorant.

ADD TENNANT 413 SF BONDING ADDITIVE at the rate of 4 oz (118.29 ml) per 5 gallons (18.9 litres) of *WearGuard-420* (8 oz (236.58 ml) if using colorant). To mix smaller quantities, use 3/4 oz (22.18 ml) per 1 gal (3.78 litres) on mixed *WearGuard-420* (1.5 oz (44.36 ml) if using colorant). Use Tennant 413 SF in the first coat only.

MIX FOR 3 MINUTES using a Jiffy® mixer blade and slow speed drill. **Pour into application tray.**

APPLY WEARGUARD-420 at the rate of 330 sq. ft. per gallon (8.11 m²/L) with a 3/8" (10 mm) nap roller. For proper appearance and development of physical properties, it is crucial that material is not applied above or below this rate. **NOTE:** *Two coats of WearGuard-420 are recommended as any outgassing bubbles or any other imperfections can be sanded out and covered with the second coat.* Dip the roller in the coating and lightly roll out excess in the application tray. Apply two 8-10 foot (2.4-3.0 meters) long paths on the concrete, making one stroke left to right and one right to left. Rewet the roller and apply two more paths adjacent to the first pair. Rewet roller and apply a third pair adjacent to the second.

SPREAD THE MATERIAL evenly with V-shaped cross passes.

ALLOW COATING TO DRY 4 HOURS at 75°F (24°C), 50% relative humidity. Sand with 100 grit sandpaper. We recommend thorough sanding with a swing-type buffer so that multiple scratch marks cause an obvious gloss loss on all areas (depressions will remain shiny), and the floor is uniformly dulled. The ability to see individual scratch marks is an indication that sanding is not adequate. Scrub with detergent and rinse with clean water to ensure adequate adhesion between coats.

APPLY SECOND COAT as above. (Do not use Tennant 413 SF with second coat.)

ALLOW COATING TO DRY 12 HOURS at 75°F (24°C), 50% relative humidity before opening to light traffic. Allow more time at low temperatures, low humidity or for heavier traffic. Full coating properties take 14 days to develop.

TECHNICAL SUPPORT

For any preparation or application questions, please call Tennant technical support at 800-228-4943 ext. 6075 (1800 226 843 Aust).

DISPOSAL

Dispose in accordance with federal, state and local regulations.

PLEASE SEE MATERIAL SAFETY DATA SHEET (MSDS) FOR SAFETY AND PRECAUTIONS.

USE PRODUCT AS DIRECTED.

KEEP OUT OF THE REACH OF CHILDREN.

MAINTENANCE GUIDELINES

Allow floor coating to cure at least one week before cleaning by mechanical means (e.g., sweeper, scrubber, disc machine).

Care: Proper maintenance will increase the life and help maintain the appearance of your new Tennant floor coating. Sweep and scrub your new coating regularly, as dirt and dust are abrasive and can quickly dull the finish, decreasing the life of your coating. Remove spills quickly as certain chemicals may stain and could possibly permanently damage the finish.

Use soft nylon brushes or white pads on your new floor coating. Polypropylene or abrasive bristle (Tynex®) brushes can cause premature loss of gloss.

Detergent: Tennant has a full range of detergents--general purpose to heavy duty--for your cleaning needs. For assistance in determining which detergent is right for your facility or for additional technical information call: 800-553-8033 US (1800 226 843 Aust).

Caution: Avoid scratching or gouging the surface. All floor coatings will scratch if heavy objects are dragged across the surface.

Do not drop heavy or pointed items on the floor as this may cause chipping or concrete popouts in the case of a weak cap.

Rubber tires can permanently stain the floor coating from plasticizer migration. Plexiglass® between the tire and the floor coating can prevent discoloration.

Rubber burns from quick stops and starts can heat the coating to its softening temperature, causing permanent marking.

Repair: Repair gouges or scratches or chip outs as soon as possible to prevent moisture or chemical contamination.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

This warranty applies to all Specialty Surface Coatings, with the following exceptions: Eco-Hard-N-Seal™, Eco-EDP™ (Electrostatic Dissipative Primer), Eco-EDE™ (Electrostatic Dissipative Epoxy), and SDS™ (Static Dissipative System). These products have a separate warranty policy.

Tennant Company warrants its Specialty Surface Coatings to be free from defective manufacture, improper formulation, and defective ingredients. Warranty covers replacement of materials only.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

In no event shall Tennant or Seller be liable for any incidental, consequential, or special damages arising out of the use of Tennant Specialty Surface Coatings. **THE ONLY REMEDY OF THE USER OR BUYER, AND THE ONLY LIABILITY OF TENNANT AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES, OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE) SHALL BE REPLACEMENT OF THE PRODUCT OR, AT THE ELECTION OF TENNANT OR SELLER, RETURN OF THE PURCHASE PRICE.**

No representative of Tennant has authority to give any other warranty or assume other liability.

The presence of a Tennant employee during the application of Tennant's Specialty Surface Coatings does not extend or alter the warranty or limitations in any manner whatsoever.