US Coating Solutions.

High Performance Technology – Low VOC Urethane
Flex-Clear

(October 2007)

TECHNICAL PRODUCT DATA

Product Description

Flex-Clear is our premium two-component, low VOC, high performance water reducible, non-yellowing aliphatic polyurethane coating. It is a high gloss UV, abrasion, and chemical resistant, flexible urethane coating that can be used for interior and exterior applications.

- High Gloss – Clear & Colors
- Low VOC
- Upon mixing A & B the product is isocyanate free
- Registered by NSF International (Reg #1326 18, R2) as suitable for use at USDA facilities on structural surfaces with the possibility of incidental food contact (www.NSF.org)
- Direct to many surfaces without the need of a primer
  - metal
  - concrete
  - wood
  - aluminum
  - galvanized metal

Recommended uses for Interior & Exterior

Food & Beverage Industry
- Walls
- Floors
- Equipment

Pharmaceutical Industry
- Walls
- Floors
- Clean Rooms
- Equipment

Amusement Parks
Anti-Graffiti System
Refineries
Power Industry
Storage Tank Exteriors
Roofs
Wastewater Facility
Commercial Buildings
Pipelines

Product Characteristics

Finish: Gloss @ 60^0 Angle up to 95
Color: Clear and Colors (see color card)
Weight Solids: 66 ± 3% Catalyzed & Reduced
Volume Solids: 55% ± 3% Clear
64% ± 3% Pigmented
VOC: < 30 g/l
Free Isocyanate (HDI) GCMS: <0.036%

Recommended Spreading Rate per Coat
Vertical Surfaces: Wet mils: 4.0 – 5.0
Dry mils: 2.4 – 3.0
Horizontal Surfaces: Wet mils: 6.0 – 8.0
Dry mils: 3.6 – 4.8
Actual Spread Rate: 250 to 400 sq.
Application Viscosity: 65 – 75 KU catalyzed & reduced
Drying Scheduled at 75^0F:
To touch: 4 hours To walk on: 6-8 hours
To handle: 6 hours
Full cure: 2 days
Pot Life at 75^0F: 1.5 hours

Sweat – in – time: 2 minutes
Shelf Life: Part A: 12 months; Part B: 12 months
Flashpoint: > 185 F
To recoat with itself if necessary at 75^0 F:
6 to 8 hours
After 2 days sanding is required to achieve adequate profile

Performance Characteristics

System Tested: Substrate: Steel
Surface Preparation: wash with water-based biodegradable neutral cleaner
Application: Direct to surface
Tensile adhesion (ASTM D4541): 2473-2609 psi
Abrasion Resistance (ASTM D4060):
10-20 mg loss
Condensing humidity – 1000 hrs AST D2247
Rusting: none Blistering: none
Impact Resistance ASTM D2794: 20 in-lbs.
Flexibility (Conical Bend) ASTM D522:
% Elongation: 32%
Resistance to cracking: <1/8"diameter
Pencil Hardness – ASTM D3363:
Gouge Hardness: 4H
Scratch Hardness: H
Thermal Shock ASTM D2246 16 cycles:
Passed
Salt fog – ASTM B117, 5000 hours:
Passed
Water Vapor Transmission Testing E96:
2.43 perms
QUV-5000 hours ASTM D4587
Color Change: passed SSPC Paint 36 Standard of less than 2.0 delta E change.
Gloss Change: passes SSPC Paint 36 Standard of less than 30 gloss change
Flame Retardant (ASTM 84); 15 - Class 1
Smoke Developed (ASTM 98); 5 - Class 1

Recommended Systems

Vertical Structure: Apply Flex-Clear aliphatic urethane @ 4.0 – 5.0 mls WFT – Depending on porosity or profile of structure a second coat may be required.
Anti-Graffiti System: Apply 1 coat of pigmented followed by 1 coat of Clear.
Alt. System – 2 coats.
Horizontal Surfaces: Apply Flex-Clear Aliphatic urethane @ 6.0 – 8.0 mils WFT – Depending on porosity and profile on second coat may be required.
Concrete – 1 coat of pigmented, 1 coat of Clear. Alt. System - 2 coats of Clear.
Rough or uneven Concrete: 1 coat of E-Coat 100% Solids epoxy, 1 coat of Flex-Clear Clear or pigmented
New wood: 1 coat of Flex-Coat urethane, lightly sand, 1 coat of Flex-Clear.
Finished Wood: Sand, 1 or 2 coats of Flex-Clear depending on desired appearance

Steel:	1 coat
Galvanized:	1 coat
Aluminum:	1 coat
Inorganic Zinc:	1 coat

Surface Preparation

Steel: Remove all loose rust, dirt, grease or other contaminants per SSPC-SP1, SSPC-SP2, SSPC-SP3 (e.g. low or high pressure water cleaner)
Aluminum: Remove all oil, grease or soap film with a neutral biodegradable detergent or emulsion cleaner.
Galvanized Metal: Remove all oil, grease or soap film with a neutral biodegradable detergent or emulsion detergent.
Concrete/Masonry/Concrete Blocks: Clean masonry substrates with neutral biodegradable detergent or emulsion cleaner to remove any laitance using low or high pressure washer. For high build systems, use Acrylic/Epoxy Primer for first coat (Note: Due to the vast differences in concrete substrates consult your sales representative for the proper coating system specifications).
Wood: Sand new wood to remove any surface contaminant and to lower grain. Previously finished wood should be sanded to provide good adhesion. Test patches are recommended.
Previously Painted Surfaces: Properly clean the surface of all dust, dirt, grease, and foreign matter. Apply a test patch to ensure adhesion to the previous coating, and also to ensure there will not be any delamination of the previous coating from the substrate.
Note: In order to insure optimum performance, remove the previous coating to bare substrate, then apply the proper coating system, as specified by your sales representative.
Anti-Graffiti System: Follow appropriate surface preparation noted above. See Our AGS System.

Application

Application Conditions: Temperature of the air, substrate and material is recommended to be between 50^0 F and 95^0 F, and at least 5^o F above the dew point. Relative humidity not above 80%. Clean spray equipment thoroughly before using . Use the appropriate solvent or cleaner that will adequately remove any residue from the previous coating that was used in the spray equipment. Then, flush equipment.
Equipment:
Airless Spray: ***Unit:*** 2000-2400 psi ***Tip.*** .015 - .017
Hose: 1/4" to 3/8
Air-Assist Sprayer: ***Unit:*** 500-650 psi ***Tip:*** .015 - .017
Conventional: DeVilbiss pressure pot with ± GA 503 gun and FF needle assembly with 777 air cap.
Roller: for vertical surfaces use a 1/4" woven nap, Phenolic core
Horizontal Surfaces: use a 3/8" woven nap, Phenolic core
Mixing Instructions: Stir each component thoroughly then mix the premeasured Part A with the Part B. Mix thoroughly, ensuring Parts A & B are blended together. Then allow the combined Parts A & B time to "sweat in" for 2 minutes. You must reduce the mixed A & B components with Clean Tap Water, at a recommended level of 5% to 20%. Reducer water should be added while agitating the product. The volume of Part A will vary based on pigments and colors. In some cases total volume after combining Parts A & B, plus water reduction volume may exceed a gallon. Recommend separate containers larger than one gallon for mixing. Once the Clean Tap Water is mixed into the combined Parts A & B you may start to apply the coating. No further sweat in time is required. **Pot Life:** 1.5 hours at 75^o F 50% R.H. **Reducer:** Clean Tap Water **Clean Up:** MEK, Xylene
**When using 5 gallon pails after catalyzing and appropriate thinning the product must be distributed into 3 separate rolling tubs to maintain the 1,5 hr, pot life, If spraying the product from the 5 gallon pail it must be sprayed within 20 minutes, Keeping the product in the 5 gallon pail reduces the pot life to 20 minutes,

PRODUCT MUST BE THINNED FOR PROPER CURING AND FILM BUILD: For smooth vertical surfaces: thin 15% with clean tap water, For rough vertical surfaces: thin 10% to 15% with clean tap water. For horizontal surfaces: thin 20% to 25% with clean tap water. For spray applications: thin to proper consistency for application equipment and surface profile,

Conditions of Sale: The seller warrants that this product conforms to label descriptions, and is fit for purposes for which such goods are used. Since the use of this product by others and other factors affecting product performance are beyond manufacturer's control, manufacturer does not guarantee the results obtained. SHOULD THIS PRODUCT FAIL TO MEET ITS SPECIFICATION MANUFACTURER WILL REPLACE THE PRODUCT, OR AT ITS OPTION, REFUND THE PURCHASE PRICE. THIS IS THE SOLE AND EXCLUSIVE REMEDY FOR ANY FAILURE OF THIS PRODUCT TO PERFORM AS WARRANTED AND SHALL ALSO CONSTITUTE LIQUIDATED DAMAGES IN CASE OF LOSS. UNDER NO CIRCUMSTANCES SHALL THE BUYER BE ENTITLED TO ANY OTHER REMEDY OR REMEDIES FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES ARE SPECIFCIALLY EXCLUDED. The seller does not authorize any person to assume any other liability in connection with the sale for use of this product unless specifically authorized by manufacturer **This product is to be used by those knowledgeable about proper application methods.**