HABBCo Industries, LLC
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Seekonk, MA 02771

HABBCure C-5095

Aliphatic One Component High Performance Wood Floor Coating Polyurethane

HABBCure C-5095 is an anionically stabilized aliphatic waterbase polyurethane system designed for use as a high performance wood floor coating. The system utilizes a polyurethane backbone specifically designed for wood floor applications and employs a unique air dry self crosslink mechanism to impart chemical resistance, abrasion resistance and mar resistance properties which equal or exceed those of two component waterbase floor coating systems generally used in the market. The **HABBCure C-5095** product sets a new standard for waterbourne wood floor coating products by supplying unequaled performance from a single package environmentally friendly water base system which meets new and upcoming regulatory requirements for commercial and tradesales floor coating applications.

Key Properties

-One Component System -No Pot Life Constraints -Superior Abrasion Resistance
-Non-Discoloring Finishes -Strong Alcohol Resistance
-Exceptional Mar and Black Heel Resistance

Recommended Use Areas

-High Performance Wood Floor Coating Systems

Typical Properties

Total Solids Content (%):	35.0%	Gardner Gloss (60 degree) (#22 rod on lanetta)	90
Viscosity@ 25C : (BKFLD LVF #2 @ 30rpm)	150 cps	VOC Content (G/L):	246g/l
pH @ 25C:	8.0	Freeze/Thaw Stability (3 Cycles): (-10F to 77F cycle)	Pass
Appearance:	Translucent	TSCA Status:	Non Compliant
Weight/Gallon @ 25C:	8.81		

Application/Compounding Discussion

HABBCure C-5095 is supplied as an unformulated base polyurethane product. Some additonal compounding will be required to meet specific customer requirements for wood floor coating applications. A recommended Starting Point Formulation for C-5095 is enclosed for customer reference. HABBCo Industries is available to further assist in specific application requirements as described by individual customers.

HABBCure C-5095 exhibits exceptional alcohol and abrasion resistance properties upon a simple and early air dry cycle. Laboratory tests have shown the formulated C-5095 sytstem to be equal to or superior to commercial two component waterbase floor coating systems. C-5095 yields a single component system which exhibits abrasion and resistance properties equal to or superior to two component isocyanate, aziridine or carbodiimide cured waterbase systems currently used in todays floor coating market. The system is easily deglossed to create a full range of high performance Satin, Semi-Gloss or High Gloss finishes for the wood coating market.

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Starting Point Formulation for HABBCure C-5095

Ingredient	Parts (by weight)	Supplier
HABBCure C-5095 Waterbourne Polyurethane (35% TSC)	**100.00**	**HABBCo Industries**
Start Mixer		
Water (to 30% TSC)	**18.00**	
Michemlube 44730 Wax	**1.00**	**Michelman Corp.**
Michemlube 37135 Wax	**1.00**	**Michelman Corp.**
Surfynol DF-110L Defoamer	**0.30**	**Air Products&Chemicals**
EFKA 3580 Flow Agent	**0.30**	**CIBA Specialty Chemicals**
Mix under moderate/strong agitation 15-20 minutes to complete dispersion of defoamer as determined by brush out with no 'fish-eye'.		
Surfynol DF-70 Defoamer	**0.06**	**Air Products&Chemicals**
Tafigel PUR 60 Thixotropic Thickener	**0.037**	**Ultra Additives**
Tafigel PUR 45 Newtonian Thickener	**@ 0.37**	**Ultra Additives**
Adjust viscosity to 21-23 seconds Zahn#2 at 25C using Tafigel PUR 45. Add in increments allowing 10-15 minutes mix between additions.		

Final Solution Parameters

Viscosity:	BKFLD RVT #2@50@25C	50-65 cps
	Zahn#2 cup @ 25C	21-23 seconds
Total Solids Content: (by weight)		29.913%
pH:		7.8-8.2
Appearance:		Translucent Liquid
Weight/Gallon @ 25C:		8.708
VOC:	lbs/gallon:	2.037
	g/l (RACT)	244

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Comparative Application Testing

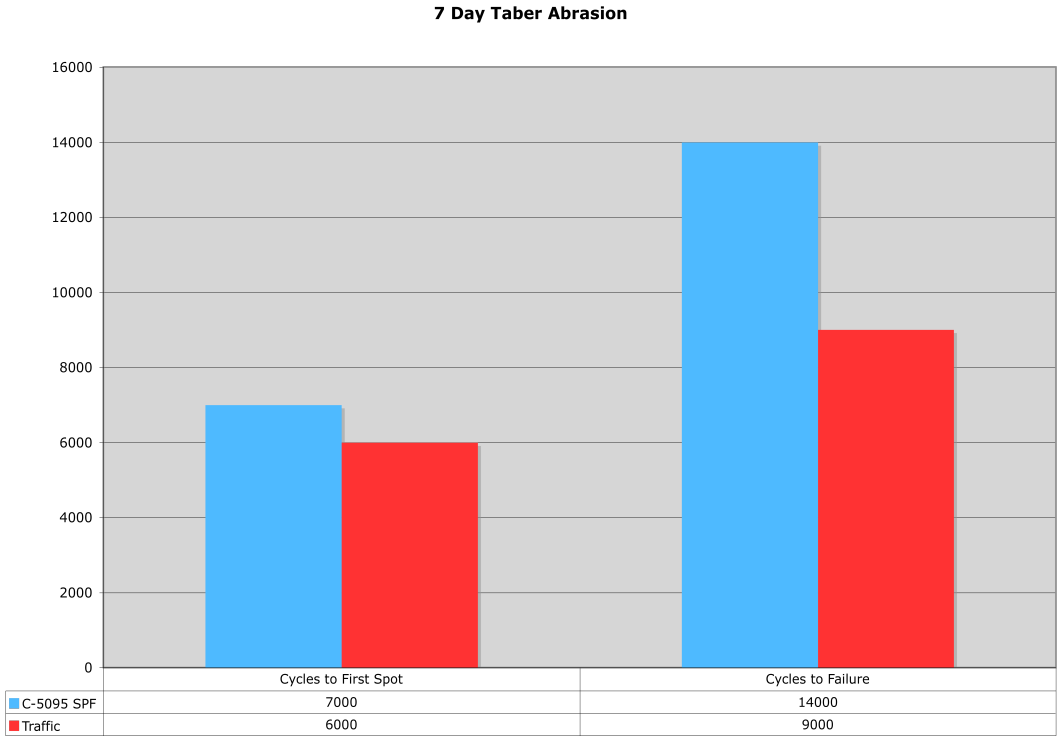
	C-5095 SPF High Gloss	Traffic Semi Gloss
Supplier Reference	HABBCo Industries	BonaChemi
Crosslinker	None	Polyisocyanate
Crossliner Amount	NA	8.5%
Coating Solids %	30.00	32.27%
Coating Viscoaity (Zahn#2)	23 sec	25 sec.
Coating Viscosity (BKFLD)	65 cps	64 cps
pH	8.0	7.97
Pot Life	Unlimited	4 hours
Wet Film Clarity	Clear	White
Dry Film Clarity	Clear	Blue Cast
Crosshatch Adhesion Oak Wood	Pass 100%	Pass 100%
Crosshatch Adhesion Intercoat	Pass 100%	Pass 100%
Sandability One brush coat 1.5 hour dry on bare Oak	Excellent Powder	Poor- Soft Surface
60 degree gloss #22 rod on lanetta cards	93	78
60 Degree gloss 3 brush cts. On oak	89	65
Konig Hardness 3 day air dry on glass	64	50
Konig Hardness 7 day air dry on glass	104	65
Mar Resistance (Black Heel) 3 Day	No Mark	No Mark
Mar Resistance (Black Heel) 7 Day	No Mark	No Mark

Evaluation I Comparison of High Gloss C-5095 vrs. Traffic

	C-5095 SPF High Gloss		Traffic Semi Gloss	
	3 Day	7 Day	3 Day	7 Day
Taber Abrasion Cycles to failure (3 coats #22 Rod on Taber Wood Panels)	>5000	14000	1000	9000

Taber Abrasion

- #22 rod application to taber wood panels. 3 coats applied air dried 1.5 hours between coats. Sand 440 grit after drying first coat.
- Panels air dried 3 and 7 days at ambient temperature.
- Testing run with CS-17 wheels and 1000 gram weights. Wheels dressed every 1000 cycles.
- Testing performed by application of waterbase black dye to abraided panels. Results recorded as cycles required for first appearance of permanent black spots on exposed wood panels, and, failure recoded as cycle required for appearance of multiple permanent black stains on abraided wood panels.



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Chemical Resistance

3 Brush Coats on oak wood. 1.5 hours air dry between coats. Sand 440 grit paper after dry of first coat. Air dry 3 and 7 days after final coat application. Coatings spot tested for 1 hour duration and rated immediately and after 1 hour recovery. Rating 1-10 with 10 = no effect to coating, 0 = destruction. Coatings rated for Film Integrity (Softening), Blushing, Staining, and Wood Discoloration.

Three Day Chemical Resistance

	C-5095 SPF High Gloss								Traffic Semi Gloss							
	3 Day Chemical Resistance (Immediate)				3 Day Chemical Resistance (Recovery)				3 Day Chemical Resistance (Immediate)				3 Day Chemical Resistance (Recovery)			
	Film Integrity	Blushing	Staining	Wood Darkening	Film Integristy	Blushing	Staining	Wood Darkening	Film Integrity	Blushing	Staining	Wood Darkening	Film Integrity	Blushing	Staining	Wood Darkening
Water	10	10	10	8	10	10	10	10	10	10	10	8	10	10	10	10
50% EtOH	10	10	10	5	10	10	10	10	10	10	10	5	10	10	10	10
70% IPA	10	10	10	5	10	10	10	10	10	10	10	4	10	10	10	9
Whiskey	10	10	10	5	10	10	10	10	10	10	10	5	10	10	10	10
Vodka	10	10	10	5	10	10	10	10	10	10	10	5	10	10	10	10
Mustard	10	10	10	8	10	10	10	9	10	10	10	5	10	10	10	5
Ammonia	10	10	5	5	10	10	7	7	10	10	5	5	10	10	5	5
Fantastic	10	10	10	9	10	10	10	10	10	10	10	5	10	10	10	10
Vinegar	10	10	10	10	10	10	10	10	10	10	10	8	10	10	10	10
Coke Soda	10	10	10	10	10	10	10	10	10	10	10	8	10	10	10	10

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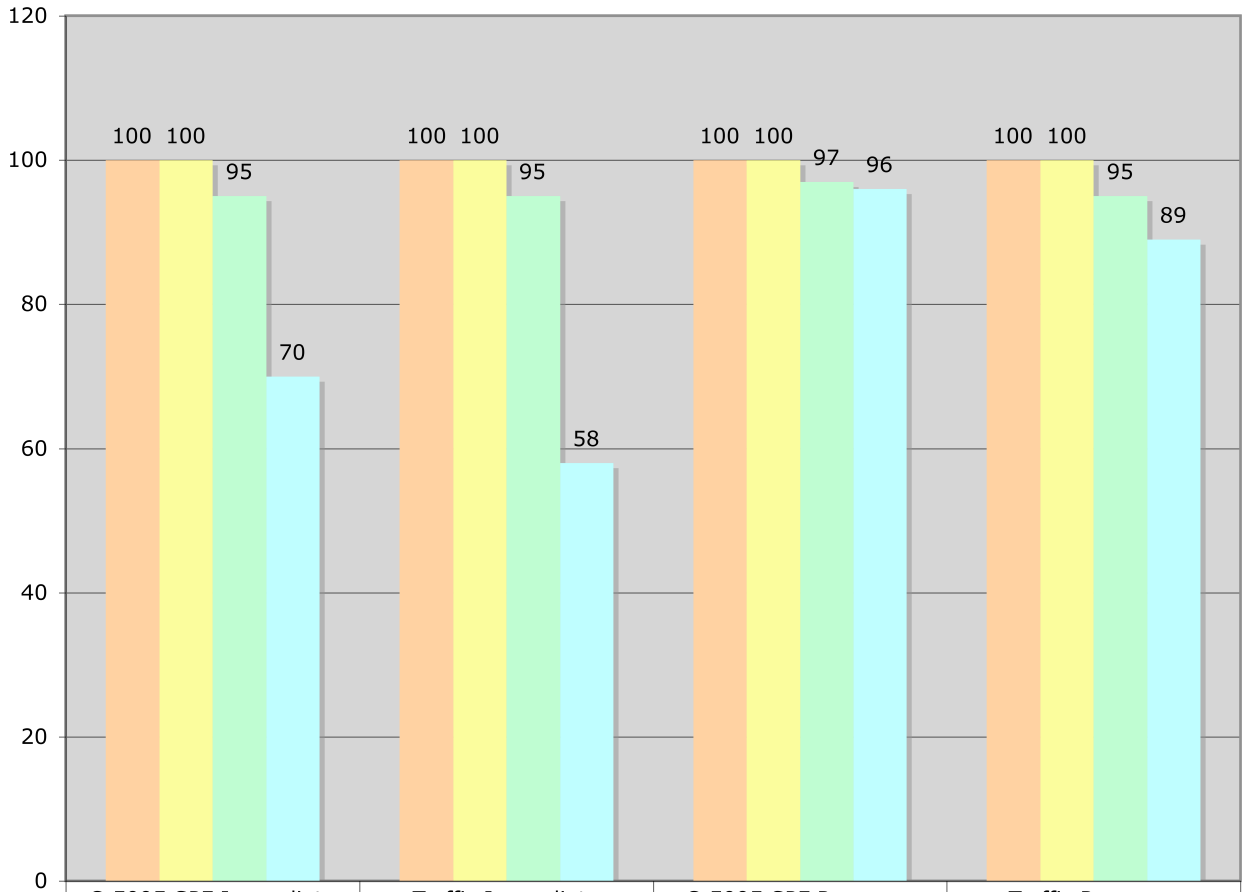
Seven Day Chemical Resistance

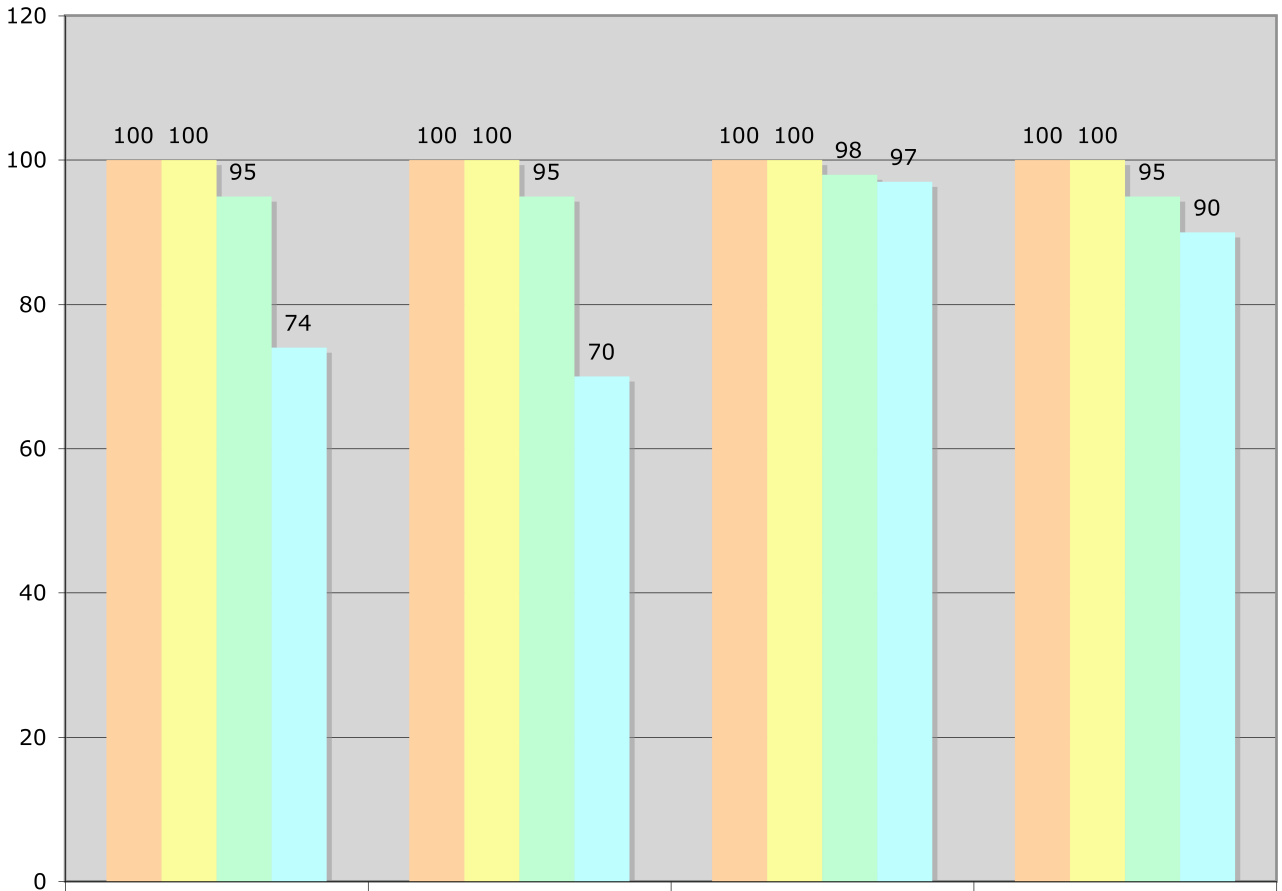
	C-5095 SPF High Gloss								Traffic Semi Gloss							
	7 Day Chemical Resistance (Immediate)				7 Day Chemical Resistance (Recovery)				7 Day Chemical Resistance (Immediate)				7 Day Chemical Resistance (Recovery)			
	Film Integrity	Blushing	Staining	Wood Darkening	Film Integristy	Blushing	Staining	Wood Darkening	Film Integrity	Blushing	Staining	Wood Darkening	Film Integrity	Blushing	Staining	Wood Darkening
Water	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
50% EtOH	10	10	10	5	10	10	10	10	10	10	10	5	10	10	10	10
70% IPA	10	10	10	5	10	10	10	10	10	10	10	5	10	10	10	10
Whiskey	10	10	10	5	10	10	10	10	10	10	10	5	10	10	10	10
Vodka	10	10	10	5	10	10	10	10	10	10	10	5	10	10	10	10
Mustard	10	10	10	9	10	10	10	9	10	10	10	5	10	10	10	5
Ammonia	10	10	5	5	10	10	8	8	10	10	5	5	10	10	5	5
Fantastic	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Vinegar	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Coke Soda	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

Chemical Resistance (Immediate vs Recovery)



	C-5095 SPF Immediate	Traffic Immediate	C-5095 SPF Recovery	Traffic Recovery
Film Integrity	100	100	100	100
Blushing	100	100	100	100
Staining	95	95	97	95
Wood Darkening	70	58	96	89

7 Day Chemical Resistance



	C-5095 SPF Immediate	Traffic Imeediate	C-5095 SPF Recovery	Traffic Recovery
Film Integrity	100	100	100	100
Blushing	100	100	100	100
Staining	95	95	98	95
Wood Darkening	74	70	97	90